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AMERICAN NATIONAL STANDARD

Graphic technology—Specifications for graphic arts printing–Type 1

SECRETARIAT
NPES THE ASSOCIATION FOR SUPPLIERS OF PRINTING AND PUBLISHING TECHNOLOGIES

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FOREWORD

(This Foreword is not a part of American National Standard CGATS.6-1996, *Graphic technology — Specifications for graphic arts printing — Type 1.*)

This standard specifies the characteristics required for sheetfed printing of process color material to be used as proofs for web offset publications.

The Committee for Graphic Arts Technologies Standards (CGATS) was accredited by the American National Standards Institute in 1989 to serve as the coordinator of graphic arts standards activities. CGATS identifies areas in which standards are needed and desired, respecting the established activities of existing accredited standards committees and industry standards developers. CGATS writes standards only where need exists and no other committee is undertaking the writing.

CGATS recommends the adoption and use of this standard by the prepress segment of the graphic arts industry and its suppliers at their earliest convenience.

Requests for interpretation must be sent in writing to the Secretariat. This request will be forwarded to the appropriate committee, which will respond in writing. A statement, written or oral, that is not processed in accordance with the procedures noted above will not be considered the official position of CGATS, and should not be relied upon as a Formal Interpretation.

Suggestions for improving this standard are welcomed. They should be sent to the Secretariat, NPES The Association for Suppliers of Printing and Publishing Technologies, 1899 Preston White Drive, Reston, VA 22091-4367.

This standard was prepared by CGATS Subcommittee 4 and was processed and approved for submittal to ANSI by Accredited Standards Committee CGATS. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time this standard was approved the leadership of CGATS was as follows:

Chairman, Thomas Basore
Vice Chairman, Gerd Koehler
Secretary, Mary Abbott

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At the time it approved this standard, CGATS had the following personnel:

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Quebecor Printing (USA) Corp.	Gerd Koehler
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Reader's Digest	Mark Merritt
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Introduction

The introduction of electronics into the graphic arts, which began in the late 1970's and early 1980's, has allowed printing to become a much more open and distributed process. This has led to an increased dependence on more analytically-based processes including digital proofing, digital distribution of advertising, direct-to-cylinder and direct-to-plate technologies. Such processes impose increasingly stringent requirements for consistency and predictability in the printing process.

The most significant printing specification in the United States is the press proofing portion of the current "Specifications for Web Offset Publications" (SWOP®) which addresses the larger subject of the preparation and proofing of input material for reproduction by web offset and gravure publication printing. That specification has received wide acceptance and has provided the publication industry with consistent proofing of input materials. It provides for testing and certification of wet inks through the Graphic Arts Technical Foundation (GATF) and specifies solid density, color, and dot gain ranges for each of the process colors. The solid density range and color are defined by physical samples called the SWOP Hi-Lo Color References prepared for SWOP by the International Prepress Association (IPA). Dot gain is provided as a numerical specification.

In 1992 CGATS undertook, at the invitation of SWOP, the task of creating a numerically-based standard to complement the current SWOP specification. This standard represents the culmination of that work and is the first of a series of CGATS standards which will define printing conditions important to the U.S. printing and publishing industry.

The two principal sources of data used to create this standard, in addition to the SWOP specification itself, are samples of the SWOP Hi-Lo Color References and the 1993 SWOP press test. The Hi-Lo patches selected were from several different expiration date groupings and represent the references used by the industry over the last several years. The SWOP press test provided press sheets close to the mid-point aims of the SWOP specification, and contained test images which are being used to provide numerical data concerning the colorimetric and densitometric characteristics of practical press proof printing. The relationship between the CMYK input data and the colors that result from printing these data, in compliance with SWOP specifications, are being reported in an ANSI technical report.

The press sheets are also important as a component of the SWOP Calibration Test Kit which provides a set of films (created from the same masters used to create the final films for the SWOP press test) and printed press sheets certified to be within the range of acceptability of SWOP requirements. These materials allow both off-press proofing system manufacturers and operators of press proofing equipment to evaluate their results with respect to a certified physical reference using common input separations.

The numerical data contained in this standard and the ANSI technical report will enhance both the continued usage of the SWOP specifications and the industry movement toward analytical process control and digital color reproduction. However, users are cautioned that control of the proofing and printing process using absolute densitometric values requires careful calibration and ongoing process control procedures. To minimize the problems associated with variation in measurement instruments and inconsistencies in practice, the use of the SWOP Hi-Lo Color References is recommended as specified by SWOP.

Although this standard provides numerical data related to SWOP, it is not a substitute for the SWOP specification. Those who specify, send or receive SWOP proofs (or material to be proofed in accordance with SWOP specifications) are urged to obtain a copy of the most recent version of the SWOP Specification. That document defines the roles and responsibilities of the various participants, the ink certification procedures, type requirements, second-color (non-process) inks, acceptable proofing materials, proof verification, etc. SWOP can be contacted at 60 E. 42nd St., Suite 721, New York, NY 10165; Tel: 212-983-6042; Fax: 212-983-6043.

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1 Scope

This standard specifies the characteristics required for sheetfed printing of process color material to be used as proofs for web offset publications and will be identified as "Type 1" printing. It is restricted to paper, inks and printing conditions meeting specific requirements which may have applications beyond publication proofing.

The numerical data in this standard was based on an analysis of control targets and printed samples associated with the current industry practice identified as "Specifications for Web Offset Publications" (SWOP).

2 Field of application

This standard is intended to provide the scientific community in the field of printing and publishing technologies with a specification for printing which may be used in the verification of printing aim data, as a reference for color characterization data, in the development of color separation aims, color data transforms, and definition of printing conditions for color data exchange.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI PH2.30-1989, *Graphic Arts and Photography — Color Prints, Transparencies, and Photomechanical Reproductions — Viewing Conditions*

ANSI/ISO 5/3-1984, ANSI PH2.18-1985, *Density Measurements — Spectral Conditions*

CGATS.4-1993, *Graphic technology — Graphic arts reflection densitometry measurements — Terms, equations, image elements and procedures*

CGATS.5-1993, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*

CGATS.9-1994, *Graphic technology — Graphic arts transmission densitometry measurements — Terms, equations, image elements and procedures*

ISO 2846-1:__ [1)] *Graphic technology — Specification for colour and transparency of printing ink sets — Part 1: Sheet-fed and heatset web offset lithography printing*

SWOP, Specifications for Web Offset Publications, 1993; SWOP Incorporated, 60 East 42nd Street, Suite 721, New York, NY, 10165

TAPPI T 452 om-92, *Brightness of pulp, paper and paperboard (directional reflectance at 457 nm)*

TAPPI T 480 om-92, *Specular gloss of paper and paperboard at 75 degrees*

[1)] To be published.