INTERNATIONAL STANDARD

ISO 2846-1

Second edition
2006-11-15

Graphic technology — Colour and transparency of printing ink sets for four-colour printing —

Part 1: Sheet-fed and heat-set web offset lithographic printing

Technologie graphique — Couleur et transparence des gammes d'encre d'impression en quadrichromie —

Partie 1: Impression lithographique offset sur feuilles et à chaud

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Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 2846-1 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

This second edition cancels and replaces the first edition (ISO 2846-1:1997), of which subclauses 4.2 and 5.2 and Annex D have been technically revised. Some very minor changes have been made for the purposes of simplification, and an effort has been made to clarify and update this document in some places. Clauses 4 and 5 have been interchanged with each other. In addition, the test-print preparation requirements have been deleted and referenced to ISO 2834-1. Annex B, describing the history of the development of the colour standard, has been removed and Annex E relettered to Annex B.

ISO 2846 consists of the following parts, under the general title *Graphic technology — Colour and transparency of printing ink sets for four-colour printing*:

— *Part 1: Sheet-fed and heat-set web offset lithographic printing*

— *Part 2: Coldset offset lithographic printing*

— *Part 3: Publication gravure printing*

— *Part 4: Screen printing*

— *Part 5: Flexographic printing*

Introduction

This part of ISO 2846 defines the colour and transparency of lithographic printing inks. Different sets of inks (both for proof and production printing) conforming to this part of ISO 2846 will produce a similar colour when printed on the same substrate at the appropriate film thickness. This enables colour separations for offset-lithographic printing to be based on known colour references and simplifies the task of consistently printing the same images in multiple printing sites.

It should be noted that the colorimetric characteristics specified can only be obtained when the inks are printed on the reference substrate. However, the similarity of two inks on a reference substrate generally ensures similarity on another substrate, and it is this similarity that has enabled industry specifications or standards such as ISO 12647-2 [1], which specifies the colour of these inks on other substrates, to be developed.

The colour specified in the previous edition of this part of ISO 2846 was based on extensive measurements of commercial ink sets made in Europe, Japan and the USA. A working group of ISO/TC 130 process control and material experts examined data sets from various countries at the time that edition was prepared and found that a single set of colour coordinates could adequately represent all three proposals within reasonable tolerances. In addition, they found that the transparency of various inks could also be adequately represented by a new method of evaluation. A review undertaken prior to the revision of this edition suggested that there had been little change in the colour and transparency of the inks commercially available and that the characteristics specified in this part of ISO 2846 could be reconfirmed.

Graphic technology — Colour and transparency of printing ink sets for four-colour printing —

Part 1:
Sheet-fed and heat-set web offset lithographic printing

1 Scope

This part of ISO 2846 specifies the colour and transparency characteristics that have to be met by each ink in a process colour ink set intended for proof and production printing using offset lithography. The specified printing conditions (which use a laboratory printability tester), the defined substrate and a method for testing to ensure conformance are also defined. Characteristics are specified for inks used for sheet-fed, heat-set web and radiation-curing processes.

This part of ISO 2846 does not apply to fluorescent inks and it does not specify pigments (or spectral characteristics — except informatively) in order not to preclude developments which may enable different pigment combinations to be used advantageously while still achieving the colorimetric requirements specified in this part of ISO 2846.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 535, *Paper and board — Determination of water absorptiveness — Cobb method*

ISO 536, *Paper and board — Determination of grammage*

ISO 2144, *Paper, board and pulps — Determination of residue (ash) on ignition at 900 °C*

ISO 2834-1, *Graphic technology — Laboratory preparation of test prints — Part 1: Paste inks*

ISO 6588-1, *Paper, board and pulps — Determination of pH of aqueous extracts — Part 1: Cold extraction*

ISO 8254-1, *Paper and board — Measurement of specular gloss — Part 1: 75° gloss with a converging beam, TAPPI method*

ISO 8791-4, *Paper and board — Determination of roughness/smoothness (air leak methods) — Part 4: Print-surf method*

ISO 13655, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*

ANSI CGATS.5:2003, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*