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**Micrographics — Colour microfilm —  
Application of the exposure technique  
to prepare line originals and  
continuous-tone originals**

*Micrographie — Microfilm en couleurs — Application de la  
technique d'exposition pour préparer des originaux au trait et des  
originaux en demi-ton*



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## 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.

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# Micrographics — Colour microfilm — Application of the exposure technique to prepare line originals and continuous-tone originals

## 1 Scope

This International Standard applies the exposure technique to the preparation of line originals and test charts, to their exposure on film including the necessary test originals (see Clause 5) and to the evaluation of test exposures on colour microfilm.

In addition, this International Standard applies to the exposure technique and the evaluation of available continuous-tone originals, ready to be microfilmed (see Annex A).

This International Standard is intended to contribute to a reproducible colour rendition with respect to the original. As far as process control is concerned, the film manufacturer's recommendation should be observed.

This International Standard does not take into account the influences of projection characteristics of microfilm readers on the subjective impression of projected colour microfilms.

**NOTE** For viewing colour microfilms, the translucent screens of microfilm readers should be neutral grey (see Annex A).

## 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 5-3:1995, *Photography — Density measurements — Part 3: Spectral conditions*

ISO 105-A01:1994, *Textiles — Tests for colour fastness — Part A01: General principles of testing*

ISO 128, *Technical drawings — General principles of presentation*

ISO 216:1975, *Writing paper and certain classes of printed matter — Trimmed sizes — A and B series*

ISO 446:2004, *Micrographics — ISO character and ISO test chart No. 1 — Description and use*

ISO 2469:1994, *Paper, board and pulps — Measurement of diffuse reflectance factor*

ISO 3334:1989, *Micrographics — ISO resolution test chart No. 2 — Description and use*

ISO 3664:2000, *Viewing conditions — Graphic technology and photography*

ISO 10550:1994, *Micrographics — Planetary camera systems — Test target for checking performance*

CIE 15.2, *Colorimetry*

### 3 Exposure technique

#### 3.1 Introduction to exposure technique

The exposure technique and the copying procedure have great influence on the colour quality of the end product. Therefore, the conditions listed in 3.2 to 3.6 for the colour temperature of the illuminating lamp, the spectral characteristics of the exposure lens, the basic filtration and other influences shall be fulfilled.

#### 3.2 Illumination of the original

The original shall be illuminated by light of constant intensity and having a distribution temperature of 3 200 K to 3 400 K, because colour microfilm is adjusted to a colour temperature of 3 200 K (see also 3.4).

#### 3.3 Exposure lenses

All lenses used for exposing colour microfilms shall be colour-corrected.

#### 3.4 Exposure

The exposure shall only be adjusted by modifying the exposure time, but not by changing the lamp current. Cameras for colour microfilming shall be equipped with a shutter, which allows adjustment of the exposure time.

NOTE Changing the lamp current would result in a shift of the distribution temperature.

#### 3.5 Filtration

The adaptation of the lamps to the distribution temperature specified in 3.2 shall be made by means of correction filters placed over the light source.

If it is necessary to adjust the colour microfilm to the illumination of the original, this can be done by placing suitable conversion filters over the exposure lens.

#### 3.6 Stray light

When exposing colour microfilm, stray light falling on to the original shall be avoided.

NOTE A variety of methods may be used depending on the stray light source; e.g. placing a black curtain around the microfilming installation can aid in avoiding light from sources other than the one used to illuminate the original. Other examples of stray light include light reflected from objects and from the clothing of the personnel operating the microfilming installation.

#### 3.7 Copy board

The copy board to hold the original shall have a dark and non-reflecting surface.

### 4 Originals made on uncoloured material (drafting paper, transparent paper, drafting foils) for recording on colour microfilm

#### 4.1 Colour of the material

##### 4.1.1 General

The selected material shall have a spectral reflectance factor  $R_{457} = (80^{+5}_0) \%$ .