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STANDARD

**7187**

Second edition  
1995-12-15

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## **Photography — Materials for direct-positive colour-print cameras — Determination of ISO speed**

*Photographie — Surfaces sensibles pour appareils photographiques  
donnant directement une épreuve positive en couleur — Détermination de  
la sensibilité ISO*



Reference number  
ISO 7187:1995(E)

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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.

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.

International Standard ISO 7187 was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 7187:1983), which has been technically revised to include several new definitions (clause 3) and a distinction between speed, ISO speed and ISO speed of a product (clause 6).

Annex A of this International Standard is for information only.

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International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

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## Introduction

The increased use of in-camera processed colour-print materials, often referred to as "instant print", and the introduction of equipment to permit their use in general cameras makes it desirable to establish a standard method for determining the speed of this type of product. This International Standard applies to any directly viewed reflection colour-print material made by camera exposure of the original scene onto a photo-sensitive material and subsequent diffusion transfer of a dye image within the same material or to a second receiver material. It also applies to any material similarly exposed, but later processed outside of the camera by a process other than diffusion transfer of the dyed image. It does not apply to copying or duplicating.

For diffusion-transfer materials, the speed and colour of prints depend on the ambient temperature during diffusion. Usually, speed problems as well as serious colour mismatches will occur in prints made at temperatures beyond the range recommended by the manufacturer. The conditions of direct viewing of reflection prints are specified in ISO 3664.

The sensitometric method specified in this International Standard gives ISO speeds that are in close agreement with film speeds obtained by making practical camera exposures. These speeds follow the  $f/16$  daylight rule; that is, the ISO speed is the reciprocal of the exposure time, in seconds, which gives the best quality print when the camera lens aperture is set at  $f/16$  in direct sunlight for an average front-lighted scene with a solar altitude between  $35^\circ$  and  $50^\circ$ .

When these ISO speeds are used in conjunction with exposure meters conforming to ISO 2720, resultant pictures will be of optimum exposure. For an average scene, the optimum exposure will be approximately midway between the least exposure and the greatest exposure producing satisfactory prints at normal viewing illuminance levels. The exposure latitude for satisfactory prints is approximately one half stop for under-exposure and one half stop for overexposure.

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# Photography — Materials for direct-positive colour-print cameras — Determination of ISO speed

## 1 Scope

This International Standard specifies a method for determining the ISO speed of materials for direct-positive colour-print cameras when used in a camera for pictorial photography. It also applies to diffusion-transfer and conventional colour-print materials directly exposed in cameras and processed in or out of the camera.

This International Standard does not apply to materials used for copying or duplicating applications.

## 2 Normative references

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

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

ISO 5-4:1995, *Photography — Density measurements — Part 4: Geometric conditions for reflection density.*

ISO 7589:1984, *Photography — Illuminants for sensitometry — Specifications for daylight and incandescent tungsten.*

## 3 Definitions

For the purposes of this International Standard, the following definitions apply.

**3.1 exposure,  $H^1$** : Time integral of the illuminance on the sensitized material, measured in lux seconds.

Exposure is often expressed in  $\log_{10}H$  units.

**3.2 speed,  $S$** : Quantitative measure of the response of the photographic material to radiant energy for the specified conditions of exposure, processing and image measurement.

**3.3 direct-positive processing**: Any one-exposure photographic process which results in a positive image directly from the original subject matter.

**3.4 diffusion transfer**: Photographic process whereby the image moves as a consequence of development to a receiving medium to form (usually) a positive image for viewing.

**3.5 reversal processing**: Photographic process in which the exposed negative latent image is formed, but that, either by uniform post-exposure or by fogging process chemicals, can be made to yield a positive reproduction.

## 4 Sampling and storage

In determining the ISO speed of a product, it is important that the samples evaluated yield the average results obtained by users. This will require evaluating

1) CIE Publication No. 17.4 defines "luminous exposure,  $H$ ". In this International Standard, "luminous exposure" is simply referred to as "exposure".