STANDARD **6**

Second edition
1993-02-01

Photography — Black-and-white pictorial still camera negative film/process systems — Determination of ISO speed

Photographie — Systèmes film/traitement négatifs noir et blanc pour photographie picturale — Détermination de la sensibilité ISO

Reference number
ISO 6:1993(E)

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 6 was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 6:1974). The primary change is to eliminate the restriction that the ISO speed of all black-and-white films be determined in a specified developer and fixing bath. It also updates references, procedures and the format in accordance with more recent speed standards for other film types.

Annexes A and B of this International Standard are for information only.

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Introduction

Black-and-white films will generally provide excellent results in several different developers and processing conditions. At the same time, it is realized that the speed of a film depends on the process used. Therefore, this International Standard specifies a method for determining the photographic speed of film/process combinations. This means a particular film may have several ISO speeds associated with it depending on the processes used. For this reason, it is important that manufacturers indicate the processing conditions for which ISO speed values are quoted.

This International Standard recognizes that black-and-white films do not generally have a unique speed if several different processes are recommended. This conflicts with the tradition of associating a specific speed value with a particular product. In the future, the process used for determining speed values should be unequivocally described to avoid misinterpretation. Since users often do not know how these films will be processed, manufacturers have an obligation to provide a speed value for this situation which will ensure good results. Usually they will take advantage of the overexposure tonal latitude of the film and give it a conservative speed value to protect users from underexposure effects in case the film is put through a process which yields low speed.

It is recognized that the speed at which a film can be exposed is dependent on the extent of development, scene luminance range, subject matter, printing paper, etc. This International Standard specifies that film/process speed is determined when the film is processed to obtain a specified contrast level. The relative ISO speed ranking of various films in different process systems will generally differ. The ISO speeds will provide correct exposures for average scenes with exposure meters conforming to ISO 2720 or ISO 2721 when the film is processed as specified in this International Standard.

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Photography — Black-and-white pictorial still camera negative film/process systems — Determination of ISO speed

1 Scope

This International Standard specifies the method for determining the ISO speed of black-and-white negative camera films used for pictorial still photography.

This International Standard applies to films processed in conventional chemicals and equipment, but also to those processed using special procedures such as those involving activators or heat for development.

This International Standard does not apply to motion-picture, aerial photography, graphic arts, radiographic or micrographic applications, nor to negatives produced in diffusion transfer systems.

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

ISO 5-3:1984, *Photography — Density measurements — Part 3: Spectral conditions.*

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**:** The time integral of illuminance on the film, measured in lux seconds.

Amounts of exposure are often expressed in logarithmic terms ($\log_{10}H$).

3.2 speed: A quantitative measure of the response of the photographic material to radiant energy for the specified conditions of exposure, processing and image measurement.

4 Sampling and storage

In determining the ISO speed of a product, it is important that the evaluated samples yield the average results obtained by users. This will require evaluating several different batches periodically under the conditions specified in this International Standard. Prior to evaluation, the samples shall be stored according to the manufacturers' recommendations for a length of time to simulate the average age at which the product is normally used. Several independent evaluations shall be made to ensure the proper calibration of equipment and processes. The basic objective in selecting and storing samples as described above is to ensure the film characteristics are representative of those obtained by a photographer at the time of use.

5 Test method

5.1 Principle

Samples are exposed and processed as specified below. Density measurements are obtained from the resultant images to produce a sensitometric curve from which values are taken and used to determine ISO speed.