INTERNATIONAL STANDARD

ISO 3665

Second edition
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Photography — Intra-oral dental radiographic film — Specification

Photographie — Film pour la radiographie dentaire intrabuccale — Spécifications

Reference number
ISO 3665:1996(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 3665 was prepared jointly by Technical Committees ISO/TC 42, *Photography*, and ISO/TC 106, *Dentistry*.

This second edition cancels and replaces the first edition (ISO 3665:1976). The Introduction gives details of the changes made in this revision.

Annex A of this International Standard is for information only.

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Introduction

The principal changes in this revision of ISO 3665 pertain to speed, safelight sensitivity and two added film sizes.

Speed is determined by measurements expressed in grays rather than coulombs per kilogram of air. This change in units was made to adopt the recommendation of the International Commission of Radiation Units and Measurements to use the gray as a measure of absorbed X and gamma radiation as opposed to coulombs per kilogram of air (a unit which simply measures ionization). The constant in the equation for determining speed and the limits for the speed groups have been correspondingly changed so that the classification of products by speed in this International Standard essentially remains unchanged.

Manufacturers are now required to specify a suitable safelight screen or filter to be used with the product. This enables an "ISO safelight condition" as described in ISO 8374 to be realised; i.e. a safelight condition that will provide no measurable or visible effect upon a sensitized emulsion.

The conditions of the storage test have been kept unchanged from the first edition of ISO 3665, and are in line with long established and proven testing conditions in the photographic industry. The storage test is primarily a test to determine the degree of sensitometric changes that might result from normal transient conditions which could be encountered during shipment and storage. Although the 70 % relative humidity conditions stated in this International Standard are beyond those suggested for storage by most manufacturers, experience has shown that such conditions, on a transient basis, would still allow for acceptable diagnostic radiographs. This test allows for the measurement of the sensitometric effects of such transient conditions.

A storage abuse test for abnormal conditions has been added as annex A.

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Photography — Intra-oral dental radiographic film — Specification

1 Scope

This International Standard establishes a system for the classification of intra-oral radiographic film by the speed of the film/process system and by the size of the film. It specifies the sensitometric characteristics of the film/process systems and the physical characteristics of the film and packets; it also describes packaging and labelling requirements.

This International Standard is applicable to intra-oral dental radiographic film for manual or automatic processing. It does not apply to films intended to be exposed with fluorescent intensifying screens, or films intended to be viewed primarily by reflected light.

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 1:1975, *Standard reference temperature for industrial length measurements.*

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

ISO 543:1990, *Photography — Photographic films — Specifications for safety film.*

ISO 554:1976, *Standard atmospheres for conditioning and/or testing — Specifications.*

ISO 5799:1991, *Photography — Direct-exposing medical and dental radiographic film/process systems — Determination of ISO speed and ISO average gradient.*

ISO 8374:1986, *Photography — Determination of ISO safelight conditions.*

3 Definitions

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

3.1 packet: Receptacle containing one or more radiographic films intended primarily for intra-oral use.

3.2 package: Receptacle containing multiple packets.

3.3 gray (Gy[1]): That dose of X and/or gamma radiation absorbed by 1 kg of air which imparts 1 J of initial kinetic energy to those charged particles which it produces.

4 Classification

4.1 ISO speed groups

The ISO speed of the film/process system shall be designated in terms of speed groups as specified in ISO 5799 and given in table 1.

Table 1 — ISO speed groups

ISO speed group	ISO speed range[1] $(Gy \times 10^2)^{-1}$
C	7,0 to 13,9
D	14,0 to 27,9
E	28,0 to 55,9
F	56,0 to 111,9

4.2 ISO size numbers

The size of intra-oral radiographic film shall be designated in terms of ISO size numbers as given in table 2.

Table 2 — Film sizes

Dimensions in millimetres

ISO size number	Dimensions of film (tol. ± 0,5)	Approximate radius of corners (tol. ± 2,0)
0	22,0 × 35,0	6
1 A	24,0 × 30,0	6
1	24,0 × 40,0	6
2[1]	30,5 × 40,5	6
3	27,0 × 54,0	6
4	57,0 × 76,0	8
4 A	54,0 × 70,0	8
5	40,0 × 50,0	8

1) The former size of 31 mm × 41 mm is, in practice, cut to 30,5 mm × 40,5 mm.

5 Requirements

5.1 General

5.1.1 Each packet shall contain one or more sheets of radiographic film, a sheet of lead foil or other material with equivalent X-ray attenuation characteristics, together with components which limit film bending and provide a light-tight enclosure.

1) 1 Gy = 1 J/kg of air (equivalent to 114,5 R or to 0,029 5 C/kg).