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International Standard 7830

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Photography — Safety photographic films other than motion picture films — Material specifications

Photographie — Films photographiques de sécurité autres que les films cinématographiques — Spécifications des matériaux

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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 developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 7830 was developed by Technical Committee ISO/TC 42, *Photography*, and was circulated to the member bodies in January 1983.

It has been approved by the member bodies of the following countries :

Australia
Belgium
Czechoslovakia
Denmark
France

Germany, F. R.
Italy
Japan
Mexico
Poland

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South Africa, Rep. of
United Kingdom
USA

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No member body expressed disapproval of the document.

Photography — Safety photographic films other than motion picture films — Material specifications

0 Introduction

The term "safety photographic film" as used in this International Standard includes leaders and sensitized stock based on the silver halide, dye transfer, diazo, vesicular or other image-producing systems. It also applies to both raw and processed film on either cellulose ester, polycarbonate, polystyrene or polyester base and to film having magnetic coatings, stripes and lacquers.

1 Scope and field of application

This International Standard specifies the requirements and corresponding methods of test for safety photographic film, in roll and sheet form, with respect to fire hazards. A field test for burning behaviour is described in annex A and methods of marking film are defined in annex B. This International Standard does not apply to motion-picture films which fall within the scope of ISO 543.

2 Reference

ISO 543, *Cinematography — Motion-picture safety film — Definition, testing and marking.*¹⁾

3 Definition

For the purpose of this International Standard, the following definition applies.

safety photographic film : Photographic films which pass the ignition time test and burning time test as specified in this International Standard.

4 Property requirements

4.1 Ignition time

Photographic films are classified as having passed the ignition time test when the ignition time is greater than 10 min when tested as specified in clause 5.

4.2 Burning time

Photographic films having a thickness equal to or greater than 0,08 mm are classified as having passed the burning time test when the burning time is not less than 45 s when tested as specified in clause 6. Photographic films having a thickness less than 0,08 mm are classified as having passed the burning time test when the burning time is not less than 30 s.

5 Ignition time

5.1 Equipment

Make the test in an electric resistance oven, the interior of which is a cavity of appropriate size to hold the film sample and an instrument for measuring temperature, such as a thermocouple or thermometer, in the centre of the cavity. The top of the oven shall be closed by means of a closely overlapping lid having two holes of diameter approximately 7 mm and 15 mm respectively, the centres being at a distance of about 15 mm from each other. Introduce a thermocouple through the smaller opening, the connecting wires having an insulating coating fitted tightly into the hole. Alternatively, the temperature in the cavity may be measured by means of other temperature measuring instruments such as a mercury thermometer fitted into the smaller hole.

1) At present at the stage of draft. (Revision of ISO 543-1974)

5.2 Preparation of test samples

Cut three samples 35 mm long and 8 mm wide from the film to be tested. The samples shall be free of perforations as far as is practicable.

5.3 Procedure

Bring the oven to, and maintain it at, a temperature of 300 ± 3 °C. When this temperature is reached, attach the sample to a thin U-shaped wire hook and introduce it through the larger opening. Fix the instrument for measuring temperature and the sample in such a way that the thermo-junction (or mercury bulb) and the centre of the sample are at an equal depth of approximately 35 mm.

Test the three samples. Between each measurement, thoroughly air the oven.

5.4 Expression of results

Record the time interval from the insertion of the sample to the ignition of the sample as the ignition time. If any one of the three samples does not meet the ignition time requirement, the material is considered to have failed.

6 Burning time

6.1 Preparation of test samples

Cut three samples each 400 mm long and 35 mm wide from the film to be tested. If only films narrower than 35 mm are

available, samples 400 mm long and their full width may be tested¹⁾. Mark each sample at a point 50 mm from each end. If the samples are not already perforated, perforate them with holes approximately 3 mm in diameter along one edge, at intervals of not more than 20 mm.

If a continuous strip 400 mm long cannot be obtained from the film being tested, shorter lengths may be stapled together with a 1 to 2 mm overlap to give the required length.

Thread a wire having a diameter of not more than 0,5 mm through the perforations on one side so that the sample is supported at points not more than 20 mm apart.

6.2 Procedure

Make the test in a room free from draughts.

With the wire stretched horizontally and the sample hanging vertically from it, ignite the bottom of one end (see the figure). Test the three samples.

6.3 Expression of results

Record the time which elapses from the moment the flame reaches the first mark until it reaches the second mark as the burning time. If the sample does not ignite or if the flame does not reach the second mark within the stipulated time, classify the film as having passed the burning time test.

If any one of the three samples does not pass the burning time test, the material is considered to have failed.

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Dimensions in millimetres

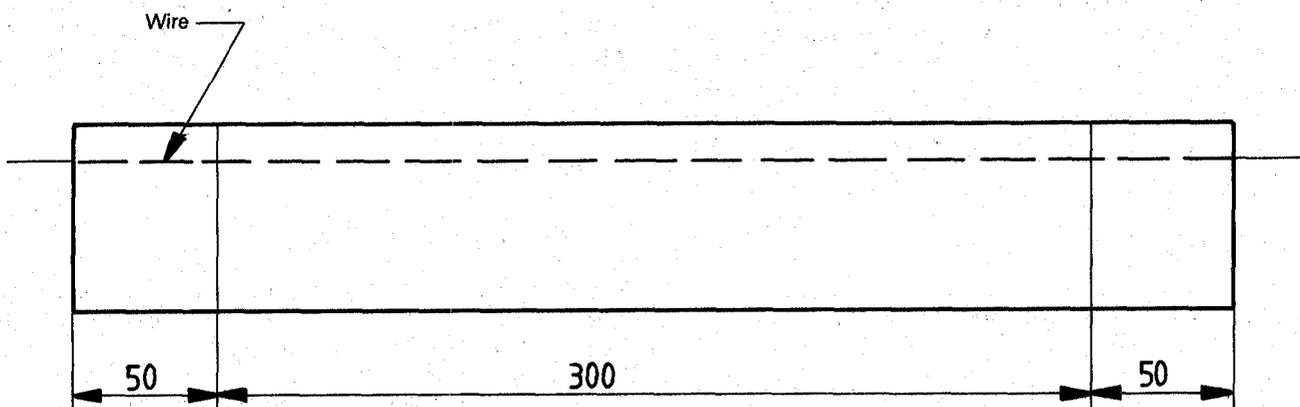


Figure — Burning time test sample
(not to scale)

1) Photographic films, when tested by this method, have similar flame propagation characteristics and approximately the same burning times, regardless of whether the width of the samples tested is 35 mm or less.

Annex A

Field test

(This annex does not form part of this standard.)

A.1 Principle

The following test method may be used for quickly identifying whether most photographic films are of the safety or of the nitrate variety, without technical equipment or the expenditure of large amounts of specimen film. However, it does not determine compliance of a film with this International Standard.

Anyone unfamiliar with the burning of safety and nitrate photographic films should first conduct this test on samples of both types of film, the identities of which are known.

A.2 Preparation of test sample

Cut a piece of film approximately 16 mm wide and 35 mm long. Bend the film lengthwise and crease it sufficiently so that when released it will stand upright.

A.3 Procedure

Stand the film sample (with the crease vertical) on a flat fireproof surface, such as an ashtray, glass plate, concrete floor, etc. This shall be done at a safe distance from all film stocks. With a match flame, ignite one of the top corners of the film.

A.4 Expression of results

If the film ignites easily, burns downward rapidly and vigorously with a bright yellow flame, and is completely consumed in less than 15 s, it probably contains dangerous quantities of cellulose nitrate and probably will not pass the tests of this International Standard for safety film. If the film sample ignites with difficulty and burns only partially or if it burns completely in a time not under 15 s, it is likely but not assured that the sample will pass the tests described in this International Standard.

Annex B

Marking

(This annex does not form part of this standard.)

Photographic film which meets the requirements of this International Standard may be suitably marked as such.

In some countries, markings between perforations or along the edge of the film comprising **S** or **SAFETY** have been used. An alternative or supplementary way of marking is by means of a fluorescent compound in or on the film base. National regulations may require these or other markings but this practice is not a mandatory requirement of this International Standard.

Safety identification marking applied at the time of film manufacture is sometimes obliterated or transferred from another film in printing operations, so the identification is lost or confused. If the film cannot be positively identified as safety film by the marking, it should be identified by the laboratory tests specified in this International Standard. Where there is a very limited quantity of film and a small degree of uncertainty is acceptable, the field test given in annex A may be sufficient.

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