

INTERNATIONAL STANDARD

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543**

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Photography — Photographic films — Specifications for safety film

Photographie — Films photographiques — Spécifications pour le film de sécurité



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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 543 was prepared jointly by Technical Committee ISO/TC 42, *Photography*, and ISO/TC 36, *Cinematography*.

This second edition cancels and replaces the first edition (ISO 543 : 1974), as well as ISO 7830 : 1983.

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

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International Organization for Standardization

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Introduction

This International Standard is a revision and consolidation of ISO 543 : 1974, *Cinematography — Motion-picture safety film — Definition, testing and marking*, and ISO 7830 : 1983, *Photography — Safety photographic films other than motion-picture films — Material specifications*.

Although the manufacture of films not complying with this International Standard is currently very rare, if it takes place at all, there remains a great amount of such films stored in libraries and archives. Due to the risk of ignition caused by careless handling, of self-ignition after long and adverse storage conditions, or rapid burning characteristics, it is necessary to provide film owners with a method of determining whether their film is "safety photographic film". That is the objective of this International Standard.

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Photography — Photographic films — Specifications for safety film

1 Scope

This International Standard provides specifications and test procedures for establishing the safety of photographic films with respect to hazards from fire. The specifications apply to both unprocessed and processed¹⁾ films on any type of currently known plastic support. These specifications cover silver films (both gelatin and non-gelatin types), colour films, diazo films, vesicular films, and striped or full-width magnetic films. Magnetic tapes and video recording tapes are excluded.

A field test for burning behaviour is described in annex A, and methods of marking film are defined in annex B. A simple test to distinguish non-safety nitrate base film from cellulose ester and polyester base film is given in annex C.

2 Definition

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

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

3 Property requirements

3.1 Ignition time

Photographic films are classified as having passed the ignition time test when the ignition time is not less than 10 min when tested as specified in clause 4.

3.2 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 greater than 45 s when tested as specified in clause 5. Photographic films having a thickness less than 0,08 mm are classified as having passed the burning time test when the burning time is greater than 30 s.

4 Ignition time test

4.1 Apparatus

4.1.1 Electric resistance oven, the interior of which is a cavity of appropriate size to hold the film specimen and an instrument for measuring temperature (4.1.2) 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.

4.1.2 Thermocouple, having connecting wires with an insulated coating fitting tightly into the smaller hole of the lid of the oven (4.1.1).

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, protected from the rising heat by means of a cork disc lying above the lid.

4.2 Specimens

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

4.3 Procedure

Bring the oven to, and maintain it at, a temperature of $(300 \pm 10) ^\circ\text{C}$. When this temperature is reached, attach the specimen to a thin U-shaped wire hook and introduce it through the larger opening in the lid of the oven. Fix the instrument for measuring temperature (4.1.2) and the specimen in such a way that the thermojunction (or mercury bulb) and the centre of the specimen are at an equal depth of approximately 35 mm.

Record the time interval from the insertion of the specimen to the ignition time of the specimen as the ignition time.

Test the three specimens. Before each measurement, thoroughly air the oven.

1) Normally, unprocessed and processed films have the same safety characteristics, so either one may be tested for conformance to these specifications. If an additional treatment such as a lacquer coating has been applied after processing, the safety characteristics may or may not be affected. In case of doubt, both unprocessed and processed films must be tested.