

საქართველოს სტანდარტი

სსკ: 37.040.20

გამოსახვის მასალები - აფსკები და ქაღალდი - განზომილების ცვლილების
განსაზღვრა

სსტ ისო 18903:2002/2025

საინფორმაციო მონაცემები

1 მიღებულია და დაშვებულია სამოქმედოდ: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს გენერალური დირექტორის 06/03/2025 წლის № 17 განკარგულებით

2 მიღებულია „თავფურცლის“ თარგმნის მეთოდით: სტანდარტიზაციის საერთაშორისო ორგანიზაციის (ისო) სტანდარტი ისო 18903:2002 „ გამოსახვის მასალები - აფსკები და ქაღალდი - განზომილების ცვლილების განსაზღვრა”

3 პირველად

4 რეგისტრირებულია: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 06/03/2025 წლის №268-1.3-041707

წინამდებარე სტანდარტის ნებისმიერი ფორმით გავრცელება სააგენტოს ნებართვის გარეშე აკრძალულია

INTERNATIONAL STANDARD

ISO 18903

First edition
2002-07-01

Imaging materials — Films and paper — Determination of dimensional change

Matériaux pour l'image — Films et papiers — Détermination des variations dimensionnelles



Reference number
ISO 18903:2002(E)

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Printed in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 18903 was prepared by Technical Committee ISO/TC 42, *Photography*.

This first edition of ISO 18903 cancels and replaces ISO 6221:1996, which has been technically revised.

Annexes A to C of this International Standard are for information only.

Introduction

Photographic films and papers exhibit temporary or reversible dimensional changes as well as permanent dimensional changes. This International Standard is designed to provide uniform methods for treating the specimens and for expressing the dimensional changes which occur with changes in atmospheric conditions and those which occur in processing and ageing.

Temporary or reversible dimensional changes are the result of changes in the equilibrium moisture content (which is determined by the relative humidity of the surrounding atmosphere) or changes in temperature. Permanent dimensional changes occur as the result of processing and ageing. The rate of permanent shrinkage of film generally increases with temperature, but decreases with time. The rate of shrinkage may also be greatest at either high or low relative humidity, depending on the type of film. Some materials, particularly photographic film on polyester base, can show a swelling after a high humidity exposure.

The increasing use of photographic films in recent years, in applications where dimensional stability is critical, has emphasized the importance of an accurate measure of dimensional properties. For example, in photomechanical reproductions a dimensional change of as little as 0,01 % may be of practical importance. In the case of aerial mapping, uniform shrinkage is not serious since it can be easily corrected by a change in magnification, but any difference in shrinkage in the two principal directions is a source of error. Any localized or non-uniform changes in dimension are of practical concern.

The dimensional change properties of any film or paper depend not only on their composition and method of manufacture, but also on their thermal and moisture content history. Accurate evaluation of such properties requires some control over the specimen history as well as very precise control over the conditioning and measuring procedures. Film and paper dimensions are also subject to hysteresis effects. These are relatively more important with the more stable materials such as polyester photographic base films.

Additional information on the dimensional characteristics of photographic films and papers and on methods of measurement may be found in the bibliography.

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