
**Imaging materials — Processed imaging
materials — Albums, framing and storage
materials**

*Matériaux pour image — Matériaux pour image après traitement —
Albums, cadrage et matériaux d'archivage*



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Published 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 2.

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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 18902 was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 18902:2001), which has been technically revised.

Introduction

Black-and-white and colour photographic materials, including traditional silver halide, inkjet, dye sublimation, and electrophotography, have become increasingly important as documentary and pictorial reference materials for consumers and in archives, libraries, government, commerce and academia. This importance has focused attention on the preservation of such materials to ensure their longest possible life.

The stability and useful life of processed imaging materials depends on their physical and chemical properties, as well as on the conditions under which they are stored and used. The important elements affecting the useful life of imaging materials are as follows:

- humidity and temperature of the storage environment;
- hazards of fire, water and light exposure;
- fungal growth;
- contact with certain chemicals in solid, liquid or gaseous form;
- physical damage;
- proper processing;
- enclosures and containers in contact with the imaging material.

International Standards have been written specifying the stability requirements for different types of photographic film: ISO 18901^[13], ISO 18905^[14], ISO 18912^[16] and ISO 18919^[18].

Recommended storage conditions are given in the following International Standards for different photographic materials: ISO 18911^[15], ISO 18918^[17] and ISO 18920^[19].

This International Standard is an auxiliary document and deals specifically with the enclosure materials used in storage. It pertains to the materials used in filing enclosures, containers, albums and frames, as well as to construction details used in folders, sleeves, jackets, envelopes, pocket pages and slide mounts. In addition, ISO 18916 describes the test method used to evaluate materials for photo-reactivity, referred to in this International Standard.

The term “archival” is no longer used in International Standards for imaging materials for defining optimum storage conditions and enclosures, because the meaning of “archival” has become too ambiguous. In common usage, “archival” has been used to mean that documents can be preserved “forever.” The new terms, when applied to the storage standards mentioned above are “extended-term” and “medium-term.” Likewise, enclosure materials should not be referred to as “archival,” but rather as meeting the specifications of this International Standard and ISO 18916.

When filing processed imaging materials, it is customary and good practice to enclose these materials in envelopes, sleeves, folders or other forms of enclosure in order to exclude dirt, protect them against mechanical damage, and facilitate identification and handling.

Storage conditions for visual records can be designed for extended-term preservation or for preservation for moderate periods of time. The storage protection required in each case will differ in degree according to the inherent stability of the visual records, the cost of providing storage facilities, the desired record life, and the frequency of record use. Storage conditions shall be chosen within specified limits in order to obtain a satisfactory compromise between the degree of protection required and the practical consideration of immediate availability.

Specifying the chemical and physical characteristics of the enclosure materials does not, by itself, ensure satisfactory storage behaviour. It is also essential to provide proper storage temperature and humidity, as well as protection from the hazards of fire, water and fungal growth, from contact with certain chemicals in solid, liquid or gaseous form (e.g., atmospheric pollutants) and from physical damage.

Furthermore, different types of imaging materials may respond uniquely to varying storage conditions. Clean, dust-free storage areas are essential because dust particles can be chemically destructive to images and base materials. In addition, solid particles can abrade photographic prints and negatives when these items are slid in and out of filing enclosures or when stacked items are sorted. Atmospheric conditions, natural and man-made, must be controlled since paper and plastic enclosures are permeable and they do not protect the photograph from environmental effects. Such effects include non-recommended relative humidities or atmospheric pollutants such as hydrogen sulfide, sulfur oxides, nitrogen oxides, peroxides and ozone.

Frames and framing material are included in this International Standard since it is realistic to assume that photographs will be viewed or displayed at some point during their lifetime. In addition, the photograph may be housed in the frame even when not on display. The lifetime of photographs on display is beyond the scope of this International Standard, however in general, long-term display is not recommended for photographs since colour and appearance may change over time.

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Imaging materials — Processed imaging materials — Albums, framing and storage materials

1 Scope

This International Standard specifies the principal physical and chemical requirements for filing enclosures, containers, albums and frames, particularly designed for storing wet or dry processed films, plates and papers. This International Standard covers requirements for paper and board, plastic, metal, adhesives (except spray adhesives), writing, labelling and printing materials. It is applicable to photographs made with hardcopy materials. Included are photographs made with traditional chromogenic (“silver-halide”) and silver dye bleach photographic materials, dye- and pigment-based inkjet, dye diffusion thermal transfer (“dye sublimation”), liquid- and dry-toner electrophotography, and other analogue and digital print processes.

This International Standard applies to storage copies and does not include work copies as defined in Annex A. It applies to visual records for extended term preservation and to visual records for preservation for moderate periods of time. The requirements are limited to the characteristics that may affect the enclosed item chemically or physically when it is stored under recommended conditions. (For methods of proper storage, see ISO 18911^[15], ISO 18918^[17] and ISO 18920^[19]).

This International Standard does not apply to the material used as a support for prints or documents. (For permanence requirements for paper for documents, see ISO 9706^[12]).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 302, *Pulps — Determination of Kappa number*

ISO 699, *Pulps — Determination of alkali resistance*

ISO 10716, *Paper and board — Determination of alkali reserve*

ISO 12757-1:1998, *Ball point pens and refills — Part 1: General use*

ISO 12757-2:1998, *Ball point pens and refills — Part 2: Documentary use (DOC)*

ISO 14145-1:1998, *Roller ball pens and refills — Part 1: General use*

ISO 14145-2:1998, *Roller ball pens and refills — Part 2: Documentary use (DOC)*

ISO 18916, *Imaging materials — Processed imaging materials — Photographic activity test for enclosure materials*

ISO 18932, *Imaging materials — Adhesive mounting systems — Specifications*

TAPPI T 406, *Reducible sulfur in paper and paperboard*¹⁾

TAPPI T 408 cm, *Rosin in Paper and Paperboard*¹⁾

TAPPI T 509 om-06, *Hydrogen ion concentration (pH) of paper extracts (cold extraction method)*¹⁾

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

- 3.1 acid-free adhesive**
mounting adhesive with a cold extraction pH between $7,0 \pm 0,2$ and $9,5 \pm 0,2$
- 3.2 acid-free paper or paperboard**
paper or paperboard with a cold extraction pH between $7,0 \pm 0,2$ and $9,5 \pm 0,2$ that is produced in an acid-free process and is sized in a neutral or alkaline manner
- 3.3 anti-blocking agent**
component of a material which provides microscopic bumps on the surface in order to minimize contact area and reduce the coefficient of friction
- NOTE Examples are talc and other silicates.
- 3.4 archival (deprecated)**
material that can be expected to preserve images forever, so that such images can be retrieved without significant loss when properly stored
- NOTE However, as no such material exists, this is a deprecated term and as such is not to be used in International Standards for imaging materials or in systems specifications.
- 3.5 buffered**
paper or paperboard with an alkali reserve that is equivalent to at least 2,0 % mass fraction calcium carbonate (CaCO_3)
- 3.6 ferrotyping**
changes in the surface gloss of swellable photographic coatings (e.g. gelatine) resulting from high humidity and direct contact with another surface
- 3.7 lignin-free**
paper or paperboard with a Kappa number of 7,0 or less, corresponding to a lignin concentration of approximately 1,0 % or less by mass
- 3.8 Newton's rings**
faint coloured rings or fringe patterns formed by the interference between a direct and a reflected beam of light generated by two transparent surfaces in close contact

1) Available from the Technical Association of Pulp and Paper Industry, Box 105113, Technology Park, Atlanta, GA 30348, USA. These documents are examples of suitable documents available commercially. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of these documents.