INTERNATIONAL STANDARD

ISO 18902

First edition
2001-09-01

Imaging materials — Processed photographic films, plates and papers — Filing enclosures and storage containers

Matériaux pour image — Films, plaques et papiers après traitement — Contenants pour classement destinés à l'archivage

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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.

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.

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

This first edition cancels and replaces ISO 10214:1991, of which it constitutes a technical revision.

This International Standard is one of a series of International Standards dealing with the physical properties and stability of imaging materials. To facilitate identification of these International Standards, they are assigned a number within the block from 18900 – 18999 (see annex A).

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

Introduction

Photographic materials, including black-and-white and colour reflection prints, films, plates, and diazo prints and transparencies, have become increasingly important as documentary and pictorial reference materials in archives, libraries, government, commerce and academia. This has focused attention on the importance of preservation of such materials to ensure their longest possible life.

The stability and useful life of photographic 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 photographic 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 photographic material.

International Standards have been written specifying the stability requirements for different types of photographic film: ISO 18901, ISO 18905, ISO 18912 and ISO 18919 (see [10, 11, 13, 15] in the bibliography).

Recommended storage conditions are given in the following standards for different photographic materials: ISO 18911, ISO 18918 and ISO 18920.

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 and albums, as well as to construction details used in folders, sleeves, jackets, envelopes, pocket pages, and slide mounts. In addition, ISO 14523 describes the test method used to evaluate filing enclosure materials for photo-reactivity, referred to in this International Standard.

The term "archival" is no longer used in International Standards 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 14523.

When filing processed films, plates or papers, it is customary and good practice to enclose these photographic 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 photographic records can be designed for extended-term preservation or for moderate periods of time. The storage protection required in each case will differ in degree according to 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 photographic and enclosure materials does not, by itself, ensure satisfactory storage behaviour. It is essential also 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 photographic materials may respond uniquely to varying storage conditions. Since solid particles abrade prints and negatives when being slid in and out of filing enclosures or when stacked items are sorted, and because such particles can sometimes be chemically destructive to images and base materials, clean, dust-free storage areas are essential. Atmospheric conditions, natural and man-made, shall be controlled since paper and plastic enclosures are permeable and they do not protect the photographic image from environmental effects. Such effects include non-recommended relative humidities, or atmospheric pollutants such as hydrogen sulfide, sulfur dioxide, nitrogen oxides, and peroxides.

Imaging materials — Processed photographic films, plates and papers — Filing enclosures and storage containers

1 Scope

This International Standard specifies the principal physical and chemical requirements for filing enclosures, albums, and containers particularly designed for storing processed photographic films, plates and papers. The photographic image may be silver-gelatin type, colour (dye-gelatin), diazo or vesicular.

This International Standard applies to storage copies and does not include work copies as defined in informative annex B. 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, ISO 18918 and ISO 18920, see [12, 14, 16] in the bibliography.)

2 Normative references

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 699:1982, *Pulps — Determination of alkali resistance*

ISO 6588:1981, *Paper, board and pulps — Determination of pH of aqueous extracts*

ISO 10716:1994, *Paper and board — Determination of alkali reserve*

ISO 14523:1999, *Photography — Processed photographic materials — Photographic activity test for enclosure materials*

ASTM D 1030-95, *Standard Test Method for Fiber Analysis of Paper and Paperboard, Appendix X5*[1)]

TAPPI T236om-99, *Kappa number of pulp* [2)]

TAPPI T406om-94, *Reducible sulfur in paper and paperboard* [2)]

TAPPI T408om-97, *Rosin in paper and paperboard* [2)]

1) Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428, USA.

2) Available from the Technical Association of Pulp and Paper Industry, Box 105113, Technology Park, Atlanta, GA 30348, USA.

3 Terms and definitions

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

3.1
anti-blocking agent
component of a material that provides microscopic bumps on the surface in order to minimize contact area and reduce the coefficient of friction

NOTE Examples are talc and silicates.

3.2
ferrotyping
glazing
changing of surface characteristics resulting from contact of two surfaces

3.3
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

3.4
slip agent
component of a material added to a surface so as to reduce the coefficient of friction

NOTE Slip agents are usually amide-type materials.

4 Materials

4.1 General

The enclosure material should be free of acids and peroxides that may be released slowly with time and cause degradation to the image or various components of the photograph. For example, ageing blemishes in processed silver gelatin microfilm may be caused by chemicals such as peroxides evolved from the paper (see [1, 2] in the bibliography). Likewise, the presence of acid in paper can cause paper degradation.

The enclosure itself shall be chemically stable. Otherwise, the decomposition products might be harmful to the photographic material, and dirt or dust might be produced that could scratch, or become embedded in the image surface. Cellulose nitrate, polyvinyl chloride, and glassine sheeting are examples of enclosure materials that are either chemically or physically unstable and shall not be used (see [3, 4] in the bibliography).

The surface of the enclosure material is also important. The enclosure shall not abrade the photograph. While a slightly textured or matte surface is recommended for the filing enclosure to minimize ferrotyping (see below), a rough surface can produce abrasion problems. There may be other harmful physical characteristics of the enclosure material that may develop under adverse environmental conditions e.g., elevated relative humidity. These include wrinkling and distortions common to glassine paper or ferrotyping of the image surface, i.e., local or overall glazing that can result from contact under pressure with smooth, glossy, plastic enclosure materials. Finally, enclosures shall be of sound and sturdy construction so that the enclosure functions properly during use, without seams or fabrication components failing or otherwise damaging the photographs during storage.

Paper, cardboard, and plastic enclosure materials, slide mounts, inks and adhesives shall meet the requirements of the photographic activity test as described in ISO 14523. This incubation test determines whether these materials have a chemical interaction with silver, colour or diazo images or cause stain in a gelatin binder (see [5] in the bibliography). The photographic activity test is also applicable for testing chemical interactions caused by album storage materials

If a particular brand of commercially made paper, cardboard, or plastic enclosure material, ink, and adhesive is found to be safe for long-term storage purposes (i.e., passes ISO 14523 and does not fail with use or cause

physical damage), there is no assurance that subsequent batches will contain ingredients of the same purity, chemical inertness, or sound and sturdy construction. Subsequent batches shall require evaluation and testing according to this International Standard and ISO 14523.

4.2 Paper and board

4.2.1 Basic requirements

Paper and cardboard shall meet the requirements of the photographic activity test described in ISO 14523.

4.2.2 Paper cartons and boxes

Paperboard and corrugated cartons, boxes, or containers that are not in direct contact with the photographic material shall have a pH between 7,0 and 9,5, as determined by the method specified in ISO 6588.

An alkali reserve shall be the molar equivalent to at least 2 % calcium carbonate ($CaCO_3$), as determined by the alkali reserve test described in ISO 10716. This alkali reserve shall be accomplished by the incorporation of an alkaline earth carbonate or equivalent. (Compounds such as magnesium carbonate ($MgCO_3$) and zinc oxide (ZnO), in molar equivalencies, correspond to approximately 1,6 % reserve. This has the same effect as 2 % molar equivalencies of $CaCO_3$). The alkali reserve shall be evenly distributed throughout the paper or paperboard.

4.2.3 Paper enclosures in direct contact with black-and-white and colour photographic images

Paper that is in direct contact with photographic material shall be made from high alpha-cellulose, bleached sulfite, or bleached kraft pulp with an alpha-cellulose content greater than 87 %, as determined by the method given in ISO 699. The paper shall be free from highly lignified fibres such as groundwood (ASTM D 1030 Appendix X5, TAPPI T 236om), alum rosin sizing (TAPPI T 408om), particles of metal, and shall contain less than 0,000 8 % reducible sulfur (TAPPI T406om).

The pH shall be between 7,0 and 9,5 as determined by the method given in ISO 6588. The alkali reserve shall be the molar equivalent to at least 2 % $CaCO_3$, as determined by the alkali reserve test described in ISO 10716. This alkali reserve shall be accomplished by the incorporation of an alkaline earth carbonate or the equivalent, as described below. The alkali reserve shall be evenly distributed throughout the paper or paperboard.

A minimum of sizing chemicals shall be used, the amount being dictated by the requirements of the end use (enclosures, overwraps, interleaving, etc.). If sizing is used, neutral or alkaline sizing chemicals (internal and/or surface) shall be employed. Dyes or pigments used to colour the paper shall show no bleeding or transfer when soaked in distilled water for 48 h while held in direct contact with white bond paper.

The surface of the paper shall be free of knots, shives and other abrasive particles. Surface fibres that might offset onto photographic layers should not be present. The paper shall not contain waxes, plasticizers, or other ingredients that may transfer to the photographic material during storage.

The paper shall meet the physical tests required for the particular application. These include folding endurance (see ISO 5626), tear resistance (see ISO 1974) and tensile strength (see ISO 527-3) (see [8, 7, 6] respectively in the bibliography).

Under prolonged direct contact in adverse environmental conditions of high relative humidity or immersion in water, paper with a pH greater than 8,0 may cause increased yellow stain formation and cyan dye fading in chromogenic colour photographs or diazo dye formation in processed diazo photographs. It should also be noted that the pH of paper will decrease with age, especially in highly polluted environments or when used to enclose acidic photographic materials, leading to embrittlement and discolouration. For this reason, an alkali reserve is generally recommended for the permanence of the enclosure paper. $CaCO_3$ and $MgCO_3$ at a molar equivalent to 2 % $CaCO_3$ will result in a pH greater than 8,0 (approximately pH 8,6 and 9,6, respectively). Enclosures that have become highly acidic should be replaced to avoid deleterious effects on dye stability, e.g., cyan dyes may convert to colourless leuco dye forms at a pH of 5,5 to 6,0.

4.3 Plastic

Plastics shall meet the requirements of the photographic activity test described in ISO 14523.

A suitable plastic enclosure material is polyester [poly(ethylene terephthalate)]. In addition, polystyrene, polyethylene, polypropylene, and spun-bonded polyolefins generally have been found suitable as they are usually inert, unplasticized, and have good chemical stability. Other plastics may be satisfactory, but there has been no extended experience with such materials. Chlorinated or nitrated sheeting, such as polyvinyl chloride and cellulose nitrate, shall not be used.

Highly plasticized sheetings or coatings shall not be employed, as this might result in either sticking or ferrotyping of the image surface. Plastics of unknown quality containing residual solvents or plasticizers are suspect, because these chemicals may escape and have a harmful effect on the photographic image.

Plastics used for containers shall contain anti-oxidants and non-halogenated fire retardants, such as antimony oxide.

Most plastic sheeting used for enclosures contains slip agents and anti-blocking agents, in order to lower the coefficient of friction on the surface to prevent blocking of the sheets. In some plastics, these components may migrate from the body of the plastic sheeting to the surface, where they redeposit as an oily residue that may transfer to the photograph stored inside the enclosure. In addition, this oily film may attract dust and other foreign matter that could cause abrasion or otherwise deteriorate the photograph. Currently there is no standard test procedure to evaluate the suitability of slip agents and anti-block agents in plastic enclosures for long-term storage of photographs.

The plastic shall meet the physical tests required for the particular application. These include folding endurance (see ISO 5626), tear resistance (see ISO 6383-2) and tensile strength (see ISO 527-3), see [8, 9, 6] respectively in the bibliography).

4.4 Metal

Metals used for cores, reels, and containers shall be noncorrodible, such as anodized aluminum or stainless steel. The use of steel is permissible, provided the surface is well-protected by powder coating, tinning, plating, or some other corrosion-resistant finish. Lacquer or enamel that might give off reactive fumes, peroxides or exudations during storage shall not be used. Metal finishes shall meet the requirements of the photographic activity test described in ISO 14523.

4.5 Adhesives

Adhesives used to cement (paste) enclosure seams and laminate paperboard plies shall meet the requirements of the photographic activity test described in ISO 14523. Some photographic images can be damaged by adhesives that contain impurities such as sulfur, iron, copper, or other ingredients that might attack image silver, gelatin, or film and paper supports. Various adhesives are hygroscopic, thus increasing the possibility of local chemical activity. Many adhesives discolour with age, staining any material with which they are in contact, or fail over time causing enclosure seams to open up. Pressure-sensitive adhesives generally have poor long-term stability characteristics and should be avoided.

Rubber-based products, such as rubber cement, shall be avoided. Not only might they contain harmful solvents or plasticizers, they might also be compounded with photographically damaging sulfur, usually a vulcanizer, accelerator or stabilizer. Even some "low-desensitizing" or "sulfur-free" rubbers contain sulfur.

4.6 Printing inks

Printing inks have been known to cause microscopic spots in fine-grain silver microfilm (see [1] in the bibliography); consequently, there shall not be any printed matter on the inside of the filing enclosure. The ink used for imprinting filing enclosures shall not bleed, spread or transfer when soaked in distilled water for 48 h while held in direct contact with white bond paper. In addition, the ink shall not be a source of products that attack the photograph or

the enclosure itself. To ensure that the ink is inactive, it shall pass the photographic activity test described in ISO 14523.

5 Enclosures

5.1 General

This clause describes several types of enclosures for processed photographic materials and possible materials of construction. The advantages and disadvantages of each are also discussed. The choice depends on the degree of protection required, the frequency of use, and the application of the photographic material.

5.2 Enclosure types

Enclosures in close or direct contact with film, plate or paper include reels, cans, bags, folders, sleeves (sheaths), pocket pages, jackets, envelopes, window mounts or mats, slide mounts, cartons, albums and aperture cards. All materials used in fabricating enclosures shall comply with the appropriate requirements of clause 4.

5.2.1 Album

An album is a binder or book structure having front and back covers (usually opaque and rigid) in which pages are bound along one edge either by glueing, sewing, or by metal posts or rings.

Photographs stored in albums may be attached to paper pages, that may have protective plastic cover sheets, or inserted into pocket pages or envelopes. In order to protect the three open sides of an album from light and dust, a slipcase may be used (a narrow box with an open end into which the album is inserted) or the album may be placed into a carton or box.

5.2.2 Aperture card

This is a processible card of standard dimensions with one or more openings into which a microfilm frame or frames can be mounted or inserted.

5.2.3 Can

A can is a metal or plastic container for a roll of recording material such as photographic film or magnetic tape.

5.2.4 Carton or box

A carton or box is an outer container that can hold one or more individual units. It may be a fabrication of paper, card stock, or plastic.

5.2.5 Cartridge

A cartridge is a housing for a roll of recording material, such as photographic film or magnetic tape, attached to a single hub or reel.

5.2.6 Cassette

A cassette is a housing for a roll of recording material, such as photographic film or magnetic tape, whose ends are attached to two hubs or reels.

5.2.7 Envelope (bag)

An envelope is a paper or plastic enclosure that is cemented, mechanically joined, heat-sealed, or ultrasonically welded on two edges with a bottom fold and one end open. A cemented bottom seam shall not be used, because

the contents tend to slide to the bottom of the envelope. The adhesive used on the edges shall not extend beyond the overlap or into the interior of the envelope. The width of any sealed flaps shall be as narrow as practical to reduce pressure differential effects upon the photographic material.

The envelope may or may not have a protective flap at the open end to provide additional protection against contamination by dust. If a flap is used, it shall not have adhesive or be sealed with tape or rubber bands. If there is no flap, some degree of dust protection is obtained when the open end is not used as the top. Envelopes made from plastic sheeting may also have a sealable mechanism along the open end, such as interlocking grooves, that offer protection against contamination by dust or infiltration of water.

5.2.8 Folder

A folder consists of a single sheet that is folded and does not have cemented seams. Folders may be made from either paper or plastic.

NOTE Enclosures for microfiche frequently have the front side lower than the full height of the back side to permit easy reading of the eye-legible header normally found on microfiche and jackets. This modification does not offer as much protection from dirt as a full panel, but it makes access to the microfiche very convenient.

5.2.9 Jacket

A jacket consists of two transparent plastic sheets separated by divider strips with single or multiple film channels made to hold single or multiple microfilm images. Channels may also be formed by heat-sealing, ultrasonic welding, or by a bead of polyester adhesive. The channels shall be designed to permit insertion of the processed photographic material without undue abrasion.

5.2.10 Pocket-style page

A pocket-style page is an enclosure made from two pieces of plastic sheeting heat-sealed or ultrasonically welded along three or four edges and at various points across the sheets to create pouches (pockets) that have slit openings to allow the insertion of the photograph.

Pages are made with multiple pockets having uniform dimensions to accommodate a certain photographic format and size such as slides, film sheets or strips, and reflection prints. The page frequently has holes along one edge to allow the page to be used in ring binders or albums.

5.2.11 Reel (spool)

This refers to a metal or plastic hub or core with flanges (protective sides) onto which film is wound.

5.2.12 Sleeve (sheath)

A sleeve is an enclosure with two seams on opposite sides and both ends open. The seam may be formed with an adhesive by heat-sealing or ultrasonic welding, or the same result may be achieved by tightly creasing a flap of enclosure material, sometimes referred to as a captive-flap enclosure. If an adhesive is used, it shall not extend beyond the area of the overlap. A sleeve is generally made from plastic sheeting.

5.2.13 Slide mount

This is a structure to retain a film for slide projection. It may be fabricated of paper, plastic, or metal and held together by adhesive or interlocking parts. The photographic film may be encased between two glass plates. The glass may have a coating to reduce the tendency to form Newton's rings if the glass comes into contact with the film.

5.2.14 Window mount or mat

This is formed by two sheets of card or paperboard hinged together with an aperture cut in the front sheet to show the image. This is principally used for the storage or display of reflection prints attached to the back card.

5.3 Dimensions

The dimensions of enclosures for processed photographic materials are guided by the dimensions and thickness of the photographic material, and the number of prints, rolls, sheets, plates or strips to be stored within the enclosure. The enclosure shall be sufficiently large to permit the desired number of photographic materials to be inserted and withdrawn without producing abrasion, and at the same time be sufficiently close-fitting to prevent excessive movement within the enclosure.

5.4 Seams

If a cemented (pasted) seam contacts the surface of the enclosed item, staining or other adverse effects may occur in the vicinity of the seam because of the individual or combined effect of an unsuitable adhesive, unsuitable enclosure material, or residual processing chemicals. Therefore, seams shall be cemented on the outside of the envelope and the adhesive shall not extend beyond the seam joint.

Envelopes with centre-seams may cause pressure distortion, staining, and/or fading throughout the main image area of the photograph stored inside. Likewise, envelopes with bottom seams may cause similar effects when the photograph inside slides to the bottom of the envelope. For this reason, envelopes with centre and bottom seams shall be avoided.

The use of envelopes constructed with a bottom fold and two side-edge seams avoids these problems and is preferable to other designs. The seam should be as narrow as possible to reduce or prevent distortion of the enclosure material. This design will also prevent pressure marks and permanent distortion of the photographic material during long-term storage due to pressure being exerted by the extra thickness of the seam. Wrinkles in the enclosure are another possible source of pressure marks; seams shall be smooth and free of wrinkles. Envelopes shall be sufficiently large to contain photographs without having the interior seam edge coincide with the enclosed photograph.

Photographs having an emulsion on only one surface shall be inserted with the emulsion side away from the envelope seams, in order to minimize adverse interactions caused by the seam on the image side of the photograph.

6 Material and construction selection

Each material and enclosure type has advantages and disadvantages. Paper is opaque and thus protects the photographic image from light, but the contents must be removed for identification or use. However, paper readily accepts writing. Plastic sheeting, with the exception of coloured sheeting or spun-bonded polyolefin sheeting, is generally transparent, permitting easy identification but offering little light protection. Plastic sheeting is more difficult to form and seal and is subject to dust attraction due to static electricity.

Folders are the easiest to use and reduce the possibility of abrading the photographic material upon insertion or withdrawal, but they offer the least protection from dust and gaseous contaminants. They are suitable for photographic materials that are used frequently.

Pocket pages, sleeves, or sheaths are usually transparent and therefore offer little light protection. Although the photographic image may be abraded during insertion, it is thereafter well-protected from abrasion; the photographic image is easily identifiable and may be viewed without removal from the enclosure. The open ends provide little protection from airborne contaminants. Sleeves or sheaths made of polyester sheeting may cause abrasion during handling if they develop kinks in the surface; pocket pages are generally made from polyolefin plastics which do not tend to form surface kinks.

Jackets, like all plastic enclosures, generally offer little light protection but good dust and abrasion protection. The photographic image is easily identifiable and may be viewed without removal from the jacket.

Window mounts or mats offer very good handling protection as they are somewhat rigid. They provide a means of easy identification and also protection during display.

Paper or spun-bonded polyolefin envelopes, especially those with protective flaps, offer the best protection from light and airborne contaminants, with paper providing a good writing surface for identifying the contents. When labelling an envelope or any enclosure, the photograph should not be inside where it may be embossed by pressure from writing. However, the photographic material is more subject to abrasion upon insertion or withdrawal. Envelopes are a good choice for material with low referral rates.

Slide mounts provide a convenient means of storing films intended for projection. None of the mounts provide protection against light, moisture, or gaseous contaminants. Glass mounts protect the film from abrasion and improve projection performance. However, if the glass does not have a matt surface, ferrotyping or Newton's rings may occur. In addition, glass may deteriorate during conditions of elevated temperature and relative humidity resulting in a caustic surface film that is harmful to photographic materials. Glass mounts may trap moisture inside, thereby promoting glass deterioration and mold growth on the interior of the mount.

Cartons or boxes are convenient for storing several individual photographic units and offer good protection from light and dust. More room may be available in the carton or box for identification and indexing. The units may not be held securely, however, if the carton is not full. This situation may call for individual protection of each unit within the carton, or the use of rigid supports that fill out unused space to prevent slumping and curling of photographs.

Albums are convenient for storing and viewing multiple units of photographs and provide some degree of rigid physical protection. However, albums do not provide protection from light and dust to the same extent as a carton or box.

Aperture cards, like slide mounts, hold relatively small pieces of film with the intention that the film remains attached to the card during use. This feature is a good choice for photographic material with high referral rates, because of the ease of use. However, the open structure offers little physical or elemental protection. Two sets may be used, one for storage and one as a work copy.

Annex A
(informative)

Numbering system for related International Standards

The current numbering system for TC 42 documents dealing with the physical properties and stability of imaging materials is confusing since the five digit numbers that are used are not in any consecutive order. To facilitate remembering the numbers, ISO has set aside a block of numbers from 18900 to 18999 and all revisions and new International Standards will be given a number within this block. The last three digits will be identical to the current ANSI/PIMA numbers of published documents. This will be advantageous to the technical experts from Germany, Japan, United Kingdom and the USA who have prepared the standard and who are familiar with the ANSI/PIMA numbers.

As the current International Standards are revised and published, their new numbers will be as given in Table A.1.

Table A.1 — New ISO numbers

Current or former ISO number	Title	New ISO number
10602	Photography — Processed silver-gelatin type black-and-white film — Specifications for stability	18901
10214	Photography — Processed photographic materials — Filing enclosures for storage	18902
6221	Photography — Films and papers — Determination of dimensional change	18903
5769	Photography — Processed films — Method for determining lubrication	18904
8225	Photography — Ammonia-processed diazo photographic film — Specifications for stability	18905
543	Photography — Photographic films — Specifications for safety film	18906
6077	Photography — Photographic films and papers — Wedge test for brittleness	18907
8776	Photography — Photographic film — Determination of folding endurance	18908
10977	Photography — Processed photographic colour films and paper prints — Methods for measuring image stability	18909
4330	Photography — Determination of the curl of photographic film and paper	18910
5466	Photography — Processed safety photographic films — Storage practices	18911
9718	Photography — Processed vesicular photographic film — Specifications for stability	18912
None	Imaging materials — Glossary of terms pertaining to stability	18913
None	Imaging materials — Photographic film and papers — Method for determining the resistance of photographic emulsions to wet abrasion	18914
12206	Photography — Methods for the evaluation of the effectiveness of chemical conversion of silver images against oxidation	18915

Table A.1 *(continued)*

Current or former ISO number	Title	New ISO number
14523	Photography — Processed photographic materials — Photographic activity test for enclosure materials	18916
417	Photography — Determination of residual thiosulfate and other related chemicals in processed photographic materials — Methods using iodine-amylose, methylene blue and silver sulfide	18917
3897	Photography — Processed photographic plates — Storage practices	18918
14806	Photography — Thermally processed silver (TPS) microfilm — Specifications for stability	18919
6051	Photography — Processed reflection prints — Storage practices	18920
15525	Imaging materials — Compact discs (CD-ROM) — Method for estimating the life expectancy based on the effects of temperature and relative humidity	18921
None	Imaging materials — Processed photographic films — Methods for determining scratch resistance	18922
15524	Photography — Polyester-base magnetic tape — Storage practices	18923
15640	Photography — Imaging materials — Test method for Arrhenius-type predictions	18924
16111	Imaging materials — Optical disc media — Storage	18925
16112	Imaging materials — Life expectancy of Magneto-Optic (MO) discs — Method for estimating, based on effects of temperature and relative humidity	18926
None	Imaging materials — Life expectancy of information stored in recordable compact disc systems — Method for estimating, based on effects of temperature and relative humidity	18927
10331	Imaging materials — Unprocessed photographic films and papers — Storage practices	18928
None	Imaging materials — Wet-processed silver-gelatin type black-and-white photographic reflection prints — Specifications for dark storage	18929