International Standard

ISO 18916

Imaging materials — Photographic activity test for enclosure materials — Processed silver-gelatin and dye-gelatin prints

Matériaux d'imagerie — Test d'activité photographique pour matériaux d'encadrement — Tirages traités à la gélatine argentique et à la gélatine teintée

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 18916:2007), which has been technically revised.

The main changes are as follows:

This revision resolves issues regarding the scope of ISO 18916:2007 and its applicability to photographic images that are not comprised of silver and/or gelatin-based materials. This revision removes these types of materials from the scope of the document. The following additional changes have been made:

— A new Annex D addresses and warns against the use of the test outside of its intended scope, e.g. as a general screen for oxidants and reductants and applied to all collection types. This annex also addresses the test's applicability towards 19th century photographic processes and digital hard copy such as inkjet, dye sublimation, and electrophotography.

— A new Annex E includes guidance on the interpretation of test results for short-term applications, such as display and transport.

— Language addressing the use of the test for consumer vs. museum applications has been added to the introduction.

— The standard no longer specifies an annual testing requirement. Instead, the standard recommends testing by batch or lot, and requires materials be re-tested upon changes in formulation or supplier change, or upon other changes in production of the product.

— Test modifications for chromogenic (dye coupler) and diazo images have been moved to a normative annex, as these are optional additional test methods for specific types of photographic processes and are not requirements of the test.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The use of materials for the storage, display, and transport of photographic records having a long-term value has necessitated the development of International Standards to specify important considerations in this field. The important elements affecting the useful life of imaging materials are as follows:

a) humidity and temperature of the environment;

b) hazards of fire;

c) hazards of water;

d) light exposure;

e) fungal growth;

f) contact with certain chemicals in solid, liquid, or gaseous form;

g) physical damage;

h) chemical processing;

i) damage from pests;

j) enclosures and containers in contact (or in close proximity) with the imaging material.

International Standards have been published which specify the material requirements for silver-gelatin type film (ISO 18901), diazo film (ISO 18905), and vesicular film (ISO 18912). Specifications for proper processing are also included in these documents. ISO 18918, ISO 18911 and ISO 18920 specify the storage conditions for photographic plates, films, and paper prints, respectively.

In addition to the storage conditions, the enclosure materials used are extremely important. Processed photographic materials in archival collections require a high degree of individual packaging to protect them from atmospheric influences, dust, and handling damage, and also to keep them from contaminating each other. For this purpose, a wide variety of paper and plastic materials are commercially available, fabricated into albums, boxes, sleeves, envelopes, folders, mat boards, and interleaving tissues. However, it is absolutely essential that these storage enclosures not cause harm to the photographic image. For optimum stability, it is necessary that storage enclosures and their components meet the requirements in ISO 18902, which includes passing the criteria of the photographic activity test.

The photographic activity test described in this document is a predictive test of chemical interactions between the storage enclosure and the photographic material. It can also be used to evaluate possible photographic activity caused by components of enclosures such as adhesives and marking substances.

This document uses detectors comprised of silver and gelatin to assess photographic activity, and therefore the test applies to silver-gelatin type film. Two modifications of this test method are provided in Annex A and apply to chromogenic (dye coupler) and diazo photographic materials. This test does not apply to other non-silver-gelatin or non-dye-gelatin systems. Many other historical prints, such as collodion, albumen, and historic silver-halide systems, contain either silver materials within the image or gelatin as a binder material, but not both. For these types of historical prints, the photographic activity test may be applicable, but best judgement should be used when applying the results of this test method to a specific type of historical print.

It is assumed that both consumers and collecting institutions such as museums, archives, and libraries, wish to preserve their photographs for extended periods of time. The photographic activity test applies to storage, display, and transport materials for both consumer and museum use. Consumers may choose to deviate from recommendations for a variety of reasons, such as aesthetics or price, but at least will have been informed on the potential consequences of those deviations.

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Imaging materials — Photographic activity test for enclosure materials — Processed silver-gelatin and dye-gelatin prints

1 Scope

This document specifies the test method for evaluating possible chemical interactions between enclosures and photographic materials that are produced in a light sensitive silver halide and gelatin containing layer, processed using wet chemistry and where the final image retains metallic silver, herein referred to as silver-gelatin materials. Modified versions of the test method are applicable to chromogenic (dye coupler) and diazo photographic materials (see Annex A).

This document is applicable to all general photographic enclosure materials used for storage, display, and transport, such as paper, tissue, cardboard, mat board and plastics. It is also applicable to components of photographic enclosure materials such as adhesives and marking substances, including inks, paints, labels, and tape. This document applies to all storage, display, and transport materials used for silver-gelatin photographs whether intended for short or long-term use (see Annex E).

This document does not apply to non-silver-gelatin imaging systems. It does not pertain to harmful physical interactions such as blocking (sticking together), dye bleed, adhesive migration, or plasticizer exudation. It does not pertain to important criteria of enclosures such as their inherent chemical stability, physical integrity, and workmanship. Passing the photographic activity test (PAT) alone does not indicate that a material is archival. Quality requirements for photo-safe storage enclosures and their components are covered in ISO 18902, which includes passing the criteria of the PAT.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 5-2, *Photography and graphic technology — Density measurements — Part 2: Geometric conditions for transmittance density*

ISO 5-3, *Photography and graphic technology — Density measurements — Part 3: Spectral conditions*

ISO 5-4, *Photography and graphic technology — Density measurements — Part 4: Geometric conditions for reflection density*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
silver-halide print
photographic print made from material sensitised with silver halide emulsion and chemically processed to produce an image

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