

Processed photographic film for archival records —

Part 2: Specifications for silver-gelatin type on poly (ethylene terephthalate) base

[ISO title: Photography-Processed photographic film for archival records — Silver-gelatin type on poly (ethylene terephthalate) base — Specifications]

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Cooperating organizations

The Photographic Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government department and scientific and industrial organizations:

- Aslib
- Association of Manufacturers and Suppliers for the Graphic Arts
- Association of Photographic Laboratories
- British Broadcasting Corporation
- British Kinematograph, Sound and Television Society*
- British Photographic Association*
- British Printing Industries Federation
- Chartered Institution of Building Services
- Drawing Office Material Manufacturers' and Dealers' Association*
- Graphic Reproduction Federation
- Her Majesty's Stationery Office*
- Institute of Incorporated Photographers Ltd.
- Institute of Reprographic Technology*
- Lighting Industry Federation Ltd.
- Ministry of Defence
- Photographic Dealers' Association
- Post Office
- Royal Photographic Society
- Scientific Instrument Manufacturers' Association

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- Microfilm Association of Great Britain
- Ordnance Survey
- University of London

This British Standard, having been prepared under the direction of the Photographic Standards Committee, was published under the authority of the Executive Board and comes into effect on 28 February 1979

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National foreword

This British Standard has been prepared under the direction of the Photographic Standards Committee and is identical with ISO 4332 "*Photography — Processed photographic film for archival records — Silver-gelatin type on poly(ethylene terephthalate) base — Specifications*" published by the International Organization for Standardization (ISO).

This British Standard will form one of a series of standards dealing with specifications for processed photographic film for archival records and attention is drawn to Part 1 (being published simultaneously) dealing with silver-gelatin film on cellulose ester base.

Attention is also drawn to the following standards, in course of preparation.

BS, *Practice for the storage of processed safety photographic film*.

(Identical with ISO 5466¹⁾)

BS, *Silver image photographic paper prints for record purposes: storage conditions*. (Identical with ISO 6051¹⁾)

Terminology and conventions. The text of the International Standard has been approved as suitable for publication, without deviation, as a British Standard. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as a decimal marker.

Wherever the words "International Standard" appear, referring to this standard, they should be interpreted as "British Standard". Where reference is made to an "ISO specification" this should be interpreted as "BS specification".

Cross-references

International Standard	Corresponding British Standard
ISO 417:1977 ^a	BS 5706:1979 <i>Methods for determining thiosulphate and other residual chemicals in processed film, plate and papers: methylene blue photometric method and silver sulphide densitometric method</i> (Identical)
ISO 543:1974	BS 850:1971 <i>Special requirements for cinematograph film designated as "safety film"</i> (Related)
ISO/R 1184:1970	BS 2782: <i>Methods of testing plastics</i> Part 3: Methods 326A to 326C:1977 <i>Determination of tensile strength and elongation of plastics films</i> (Technically equivalent)

NOTE *Textual error.* When adopting the text of ISO 4332, the following printing error was noticed. At 3.6 "mushines" should read "mushiness".

^a With reference of footnote 1), clause 2, ISO 417 is now published.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

¹⁾ In course of preparation.

0 Introduction

Since 1930, great advances have been made in the use of photographic films for the preservation of records. The preservation of film records by governments, banks, insurance companies, industry and other enterprises has been stimulated by a recognition of the economies in storage space, organization, accessibility, and ease of reproduction that result from the use of film records.

During the early development period of the art of copying documents, 35 mm nitrate motion-picture film was sometimes used. This material is highly flammable and deteriorates rapidly under unfavourable storage conditions. Nitrate film is not acceptable for any archival record use. The manufacture of nitrate film declined after World War II and was discontinued in most countries during the 1950s.

For many years, the only films suitable for archival storage were made on some type of cellulose ester base. An ISO specification for archival photographic film on this base has been drawn up (ISO 4331, *Photography — Processed photographic film for archival records — Silver-gelatin type on cellulose ester base — Specifications*). In 1956, a synthetic polymer film base belonging to the polyester class was introduced. This particular polyester is known chemically as poly (ethylene terephthalate). It has several advantages over cellulose ester base, including superior mechanical properties and dimensional stability. Practical experience with this polyester film is considerably shorter than that with cellulose ester film. However, experience to date and accelerated ageing tests indicate that this film support is just as stable, if not more so, than safety cellulose ester base. This International Standard for archival film on poly(ethylene terephthalate) base parallels ISO 4331 for cellulose ester base.

This International Standard is intended to eliminate possible hazards to permanence attributable to the chemical or physical characteristics of the processed film. Some of these characteristics are the responsibility of the film manufacturer, some of the film processor, and some are influenced by both. However, specifying the chemical and physical characteristics of the material does not, by itself, ensure satisfactory archival behaviour. It is essential to provide proper storage temperature and humidity and protection from the hazards of fire, water, fungus and certain atmospheric pollutants.

1 Scope and field of application

1.1 This International Standard establishes the specifications for safety poly(ethylene terephthalate) type films having silver-gelatin type emulsions processed to produce a stable black-and-white photographic image.

1.2 Silver images produced by full reversal processing are included. Silver images that have been chemically altered by treatments such as toning, reduction, or intensification are excluded. Colour films are excluded. However, a gold protection treatment is not excluded. Silver images produced by dry processing, diffusion transfer, monobath processing and halide reversal processing are also excluded.

1.3 This International Standard is applicable to micro-film, motion-picture film, roll film, and sheet film intended for archival record films.

1.4 Lacquers and lubricants have been applied to processed film for fungus and scratch protection without any known detrimental effect on permanence. However, because of the wide variety of possible materials, lacquered and lubricated film are excluded from this International Standard.

2 References

ISO 417, *Photography — Determination of thiosulphate and other residual chemicals in processed photographic film, plates and paper — Methylene blue photometric method and silver sulphide densitometric method*²⁾.

ISO 543, *Cinematography — Motion-picture safety film — Definition, testing and marking*.

ISO/R 1184, *Plastics — Determination of tensile properties of films*.

ISO 5466, *Photography — Practice for the storage of processed safety photographic film*³⁾.

3 Definitions

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

3.1 archival record film

a photographic film composed and treated so that under optimum storage conditions it is suitable for the preservation of records having permanent value (See ISO 5466.)

²⁾ At present at the stage of draft. (Revision of ISO/R 417.)

³⁾ In preparation.