

**Implementation of
ISO 12206 : 1995**

**Photography —
Methods for the evaluation of
the effectiveness of chemical
conversion of silver images
against oxidation**

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee CPM/13, Commercial and archival photographic records, upon which the following bodies were represented:

- British Compressed Gases Association
- British Film Institute
- British Institute of Professional Photography
- Drawing Office Material Manufacturers' and Dealers' Association
- Ordnance Survey
- Society of Archivists

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National foreword

This British Standard reproduces verbatim ISO 12206 and implements it as the UK national standard.

This British Standard is published under the direction of the Consumer Products and Services Sector Board whose Technical Committee CPM/13 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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INTERNATIONAL STANDARD

ISO
12206

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Photography — Methods for the evaluation of the effectiveness of chemical conversion of silver images against oxidation

*Photographie — Méthodes d'évaluation de l'efficacité de la conversion
chimique des images argentiques contre l'oxydation*



Reference number
ISO 12206:1995(E)



Documents

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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.

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.

International Standard ISO 12206 was prepared by Technical Committee ISO/TC 42, *Photography*.

Annex A forms an integral part of this International Standard. Annexes B, C and D are for information only.

Introduction

Silver-gelatin photographs have been used extensively for recording and preserving information of lasting value in all fields of human activity. The long-term stability of these records has become of increasing concern in recent years, because image and support degradation have been found with accelerating frequency in photographic collections and archives.

ISO has published documents on various aspects of the stability and preservation of black-and-white silver-gelatin photographic materials. ISO 10602:1995, *Photography — Processed silver-gelatin type black-and-white film — Specifications for stability*, provides test methods and criteria for the physical properties, permissible residual processing chemicals, and the image quality of films. ISO 5466:1992, *Photography — Processed safety photographic films — Storage practices*, deals with the conditions required for maintaining and preserving the integrity of photographic films during storage. ISO 10214:1991, *Photography — Processed photographic materials — Filing enclosures for storage*, pertains to the materials used in contact with stored photographic materials.

If photographic film meets the material and processing specifications of ISO 10602 and is stored in accordance with ISO 5466 and ISO 10214, excellent stability will be obtained. Similarly, photographic paper prints should be stored in accordance with ISO 6051:1992, *Photography — Processed photographic paper prints — Storage practices*, and processed photographic plates in accordance with ISO 3897:1992, *Photography — Processed photographic plates — Storage practices*.

However, in practical situations it is not always possible to control the storage conditions, particularly with respect to contaminants.

Atmospheric pollutants such as peroxides, sulfur dioxide, ozone and nitrogen dioxide are very detrimental to silver images^[1]. Such environmental pollutants are of increasing concern in our industrial society. They can cause oxidation of the silver with consequent silver migration. This results in image fading, silver mirroring and redox blemishes^{[2][3]}. Oxidizing agents that diffuse out of enclosure materials cause similar defects.

Recent studies have shown that silver images can be made resistant to oxidizing pollutants by chemically treating the silver to form silver sulfide^[4] or silver selenide^[5], or by substitution of the silver by gold^[6]. Such treatments are recommended when it is not possible to ensure the absence of contaminants, or when the importance of the image justifies the added expense.

This International Standard is an adjunct to the processing requirements and describes methods for evaluating the effectiveness of various treatments which impart greater stability to silver images.