

2024-12-06

ISO/FDIS 9706:2024(en)

ISO/TC-46/SC-10

Secretariat: SIS

Date: 2025-02-26

Information and documentation — Paper for documents — Requirements for permanence

Information et documentation — Papier pour documents — ~~Prescriptions pour~~ Exigences relatives à la
permanence

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

FDIS stage

<https://standards.itih.ai/catalog/standards/iso-7067a5-610153fb4cfc/iso-fdis-9706>

© ISO 2024/2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: + 41 22 749 01 11
E-mail: copyright@iso.org
Website: www.iso.org

Published in Switzerland

iTeh Standards (<https://standards.iteh.ai>) Document Preview

ISO/FDIS 9706

<https://standards.iteh.ai/catalog/standards/iso/46e7add9-ef1c-4c04-b7a5-610153fb4cfc/iso-fdis-9706>

Contents

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Required characteristics	3
6 Test report	4
7 Labelling	4
Annex A (normative) Special instruction for determining the Kappa number	5
Annex B (normative) Statement and symbol of conformity	6
Annex C (informative) Notes on accelerated ageing tests and optical properties	7
Annex D (informative) Relationship between paper permanence (ISO 9706), archival paper permanence and durability (ISO 11108), and paper stability for general graphic applications (ISO 20494)	9
Bibliography	12
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Required characteristics	3
5.1 General	3
5.2 Strength properties	3
5.3 Alkali reserve	3
5.4 Resistance to oxidation	4
5.5 pH value of aqueous extract	4
6 Test report	4
7 Labelling	4
Annex A (normative) Special instruction for determining the Kappa number	5
Annex B (normative) Statement and symbol of conformity	6
Annex C (informative) Notes on accelerated ageing tests and optical properties	7
Annex D (informative) Relationship between paper permanence (ISO 9706), archival paper permanence and durability (ISO 11108), and paper stability for general graphic applications (ISO 20494)	9
Bibliography	11

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

ISO/FDIS 9706

<https://standards.iteh.ai/catalog/standards/iso/46e7add9-ef1c-4c04-b7a5-610153fb4cfc/iso-fdis-9706>

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 documents 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.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 46, *Information and documentation*, Subcommittee SC 10, *Requirements for document storage and conditions for preservation*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 9706:1994), which has been technically revised.

The main changes are as follows:

- the Introduction has been modified and ~~Annex D~~ **Annex D** has been added to emphasize the relationship and differences between existing standards regarding the requirements of paper for different applications: permanent and durable paper for documents which are intended to be used frequently and kept permanently, and for stable paper used for general graphic applications;
- the normative references have been updated;
- the term "document" has been replaced by an existing definition in the terminology database of ISO.

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.

Introduction

Librarians and archivists have found that paper documents made as recently as the second half of the 20th century show serious deterioration under typical library and archive storage conditions. Contrary to this observation, the past 1,500 years of paper use show that papers consisting mostly of cellulose have considerable permanence and durability.

Research indicates that the deterioration is due to the presence of cellulose-degrading compounds in the paper furnish and materials incorporated in the paper during manufacture, e.g. acidic materials such as rosin-alum size.

The intention of this document is to define a permanent paper that is most suitable for indefinite storage, e.g. in archives, libraries, and museums. Such paper is to be used for books as well as for files, documents and other records that are to be stored permanently for legal, cultural policy or other reasons. For this purpose, this document provides a method for specifying paper which, according to the present state of knowledge, has a high degree of permanence. Paper fulfilling the requirement of this document shows no or only slight changes in optical and mechanical properties which have an influence on readability of recording (printing, writing or copying) and handling when stored for a long period in a protected environment. This purpose requires papers eligible for permanent use to be free of oxidizable matter that causes undesirable discolouration, e.g. lignin or recycled material of uncertain composition, and/or substances that have a negative impact on mechanical strength, for example any type of acid sizing or other acid-producing substances.

This document is based on a small number of quantitative tests for which limiting values have been specified. Paper classified in accordance with this document shall show measurement results within the specified limits for all prescribed tests.

The limits are chosen so that paper conforming to the specifications of this document can be produced in large quantities at reasonable prices. This permits printing firms, publishing companies, public administration, and others to use this paper for all types of written and printed matter, files and records, or publications which for any reason are to be preserved indefinitely in libraries, archives or any other entities concerned in this matter.

There are two standards, apart from this document, regarding different applications of paper:

- ISO 11108, which describes archival paper with the same permanence requirements as for ISO 9706 and with high durability (able to withstand the effects of wear and tear during use).
- ISO 20494, which describes paper for general graphic applications, not intended for permanent storage, including newspapers, magazines, catalogues, books, office printouts and copies where changes in optical properties over time can be tolerated.

This document and ISO 11108 differ from ISO 20494; they are not comparable either in approach or in method. In ISO 20494, the decrease in mechanical-physical strength that a paper suffers when subjected to moist heat treatment for up to 12 days is the basis for defining service life despite any optical changes.

Conversely, this document and ISO 11108 are based on the fact that acid-catalysed hydrolysis is the major cause of the degradation of cellulose, the substance that provides strength to paper, and that this acid hydrolysis is strongly inhibited if an alkaline buffer and no or little acid-forming substances are present in the paper. Furthermore, this document and ISO 11108 define a resistance to oxidation which requires the paper to have a Kappa number of less than 5, corresponding to about 10 g of lignin per kg of paper. This document and ISO 11108 therefore specify a paper that is expected to remain substantially unchanged over time whereas ISO 20494 accepts the loss of brightness or yellowing. Further description of the relationship between these standards can be found in Annex D-Annex D.

Both this document and ISO 11108 evaluate the permanence properties of the paper. Note, however, that a document is considered permanent if it includes both a permanent paper substrate and a permanent recording method (i.e. writing, printing and copying). Permanence and durability of recording materials are tested according to ISO 11798. Cultural policy and, if applicable, legal mandates require archives, libraries, museums, and other collections to store written material and printed matter of this kind in perpetuity, to preserve it and to make it available for use as an object of study or as authentic evidence of rights in the long term. For this reason, printing firms, publishing companies, agencies of public administration, business and industry, and any place where other written materials are created that are eligible for permanent storage, should ensure that the requirements of this document (mechanical strength, alkali reserve, oxidation resistance and pH value, measured in each case on the paper as produced) are met.

A reasoned explanation for the exclusion of some common paper testing methods is given in Annex C. Annex C.

This document may be used as a stand-alone specification. It may also be incorporated as a component in other specifications used in trade or as national or international standards for more specific purposes.

iTeh Standards (<https://standards.itih.ai>) Document Preview

ISO/FDIS 9706

<https://standards.itih.ai/catalog/standards/iso/46e7add9-ef1c-4c04-b7a5-610153fb4cfc/iso-fdis-9706>

Information and documentation — Paper for documents — Requirements for permanence

1 Scope

This document specifies the requirements for permanent paper intended for documents. It is applicable to unprinted papers. It is not applicable to boards.

NOTE 1 The terms paper and board are defined in ISO 4046-3. This document is not intended for judging the permanence of papers stored under hostile conditions, such as high humidity that can promote microbiological attack, excessive heat, radiation (light or other), high levels of atmospheric pollutants, or the influence of water.

NOTE 2 For information on International Standards on paper permanence (ISO 9706), on archival paper permanence and durability (ISO 11108), and on paper stability for general graphic applications (ISO 20494), refer to Annex D. Annex D.

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 186, *Paper and board — Sampling to determine average quality*

ISO 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 302, *Pulps — Determination of Kappa number*

ISO 536, *Paper and board — Determination of grammage*

ISO 1974, *Paper — Determination of tearing resistance — Elmendorf method*

ISO 6588-1, *Paper, board and pulps — Determination of pH of aqueous extracts — Part 1: Cold extraction*

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

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 3.1

permanence

ability to remain chemically and physically stable over long periods of time

3.2 3.2

document

information and the medium on which it is contained

Note 1-to-entry:- In this document, the term refers to a paper object.

[SOURCE: ISO 9000:2015, 3.8.5, modified — Example and notes to entry have been deleted]

3.3 3.3

alkali reserve

compound (such as calcium carbonate) that neutralizes acid that might be generated as a result of natural ageing or from atmospheric pollution

[SOURCE: ISO 10716:2022, ~~definition~~, 3.1]

3.4 3.4

permanent paper

paper which during long term storage in libraries, archives and other protected environments will undergo little or no change in mechanical or optical properties that affect use

Note 1-to-entry:- Examples of use of a document include, but are not limited to, the ability of the document to be handled, read, examined, or copied for the purposes of dissemination or transfer to another medium.

3.5 3.5

durability

ability to resist the effects of wear and tear when in use

[SOURCE: ISO 11108:2025, 3.4]

3.6 3.6

paper stability

ability of paper to retain its intended functionality for general graphic applications, under normal use and storage conditions

Note 1-to-entry:- Stability for the purpose of ISO 20494 differs from permanence which is required for paper used for documents to be stored over long periods of time, as in libraries, archives and other protected environments.

[SOURCE: ISO 20494:2017, 3.1]

3.7 3.7

general graphic applications

printing and writing on graphic paper for all applications not intended for permanent storage

Note 1-to-entry:- Typical products used for general graphic applications include newspapers, magazines, catalogues, books, office printouts and copies.

[SOURCE: ISO 20494:2017, 3.2]

4 Principle

This document should be considered as a screening test for general purposes.

According to present knowledge of paper permanence, papers that fulfil the requirements given are likely to undergo little or no change in properties that influence readability and handling in libraries, archives and other protected environments.

This document is primarily intended for writing and printing papers and also reprographic printing papers. Some papers for specialized purposes can fail to fulfil all the requirements although they have a high degree of permanence. This might be the case for some heavily coated printing papers, such as art paper, and also for some papers used by artists.