

INTERNATIONAL
STANDARD

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**Information and documentation — Archival
paper — Requirements for permanence
and durability**

*Information et documentation — Papier pour documents d'archives —
Prescriptions pour la permanence et la durabilité*

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Foreword

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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 11108 was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 10, *Physical keeping of documents*.

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Information and documentation — Archival paper — Requirements for permanence and durability

1 Scope

This International Standard specifies the requirements for archival paper. It is applicable to unprinted papers intended for documents and publications required for permanent retention and frequent use. For these documents and publications, paper of high permanence and high durability is required.

NOTES

- 1 Archival paper is primarily required for documents and publications intended to be kept permanently because of their high historical, legal or other significant value. Archival paper is for special purposes, not for common use. The use of the term "archival paper" does not imply that all papers kept in archives are "archival papers".
- 2 The relationship between this International Standard and ISO 9706 is described in annex A.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 186:1994, *Paper and board — Sampling to determine average quality*.

ISO 187:1990, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*.

ISO 302:1981, *Pulps — Determination of Kappa number*.

ISO 536:1995, *Paper and board — Determination of grammage*.

ISO 1974:1990, *Paper — Determination of testing resistance (Elmendorf method)*.

ISO 4046:1978, *Paper, board, pulp and related terms — Vocabulary*.

ISO 5626:1993, *Paper — Determination of folding endurance*.

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

ISO 9706:1994, *Information and documentation — Paper for documents — Requirements for permanence*.

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

3 Definitions

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

3.1 archival paper: Paper of high permanence and high durability.

3.2 permanence: The ability to remain chemically and physically stable over long periods of time.

[ISO 9706]

3.3 durability: The ability to resist the effects of wear and tear when in use.

3.4 alkali reserve (of a paper): A compound (such as calcium carbonate) that neutralizes acid that might be generated as a result of natural ageing or from atmospheric pollution, determined as specified in ISO 10716.

[ISO 9706]

4 Required characteristics

4.1 General

A sample of the lot under inspection shall be obtained as described in ISO 186. By visual inspection, the paper shall be free from obvious defects, such as creases, large specks, holes and wrinkles.

4.2 Fibre composition

The paper shall be made principally from fibres of cotton, cotton linters, hemp, flax, or mixtures thereof. If a minor fraction of fully bleached chemical pulp is used to reach desirable performance, the amount shall be specified.

NOTE — A desirable performance does not only refer to the intrinsic properties of paper, but also includes, for instance, printing performance in various printing devices. For this reason, a maximum limit for a fully bleached chemical pulp fraction is not specified.

4.3 Grammage

The grammage, determined as described in ISO 536, shall be at least 70 g/m².

NOTE — No upper limit is given, but the ISO definition of paper excludes materials of grammage exceeding 225 g/m².

4.4 Tearing resistance

The tearing resistance in any direction (machine or cross) shall be at least 350 mN.

The samples shall be conditioned at 23 °C and 50 % relative humidity as described in ISO 187. The tear test shall be performed as described in ISO 1974.

4.5 Folding endurance

The paper shall have a folding endurance in any direction (machine or cross) of at least 2,42 when determined with the Schopper instrument or at least 2,18 when determined with the Lhomargy, the Köhler-Molin or the MIT instrument.

The samples shall be conditioned at 23 °C and 50 % relative humidity as described in ISO 187. The determination and calculation of the folding endurance shall be performed as described in ISO 5626.

When determining the folding endurance, make sure that the folding zone in no case accommodates parts of a watermark (as defined in ISO 4046).

NOTE — A folding endurance of 2,42 corresponds to a fold number of about 260. A folding endurance of 2,18 corresponds to a fold number of 150. It should be observed that the folding endurance is the mean of the logarithms (to the base 10) of each of the individual readings.

4.6 pH value of aqueous extract

The pH value of an aqueous extract, prepared with cold water and determined as specified in ISO 6588, shall be in the range from 7,5 to 10,0.

NOTE — This test gives the average pH of the paper. However, no single layer should have a pH value below 7,5. To ensure this, the manufacturer's warrant of the use of an alkaline process may be accepted as indication that the paper meets this requirement.

4.7 Alkali reserve

The paper shall have an amount of alkali reserve corresponding to at least 0,4 mol of acid per kilogram, determined as specified in ISO 10716.

NOTES

- 1 When calcium carbonate is used to create the alkali reserve, the requirement is met if the paper contains about 20 g of CaCO₃ per kilogram of paper.
- 2 In the event that archival paper is produced as coated paper, it should be recognized that this requirement gives the average alkali reserve of the paper. However, no single layer should have an alkali reserve below that corresponding to 0,4 mol of acid per kilogram of paper.

4.8 Resistance to oxidation

The paper shall have a Kappa number of less than 5,0 when measured as specified in ISO 302 with the modification given in annex A of ISO 9706:1994.

5 Report

The testing laboratory shall include in its report the following:

- a) precise identification of the paper lot tested;
- b) date and place of testing;
- c) the visual observations made when inspecting the sample, according to 4.1;
- d) the grammage of the paper, determined as specified in ISO 536;
- e) the test results obtained when testing as specified in 4.4 to 4.8, expressed as stated in the relevant International Standard;
- f) any other observations made that may be of importance for the permanence or durability of the paper;
- g) a statement that the paper meets or fails to meet the requirements of this International Standard. In the latter case, the specific reasons shall be stated.

Annex A

(informative)

Relationship between archival paper and permanent paper as defined in ISO 9706

Any paper that is made according to this International Standard will also meet the requirements of ISO 9706. It may therefore be marked or imprinted with the compliance symbol in annex B of ISO 9706 if the producer should so wish. The compliance may also be advertised, for example, in paper trade catalogues.

This is, however, not specifically recommended, since it is compliance with this International Standard that must be most important to make known. Furthermore, the paper will often be used for documents on which an imprinted symbol of compliance would be inappropriate. A special symbol of compliance for this International Standard is not included, since it might lead to confusion.

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