

Australian Standard<sup>®</sup>

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**Permanent paper**

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[Based on and including the full text of ISO 9706:1994 Information and documentation — Paper for documents — Requirements for permanence]

This Australian Standard was prepared by Committee MS/48, Permanent Paper. It was approved on behalf of the Council of Standards Australia on 30 August 1996 and published on 5 November 1996.

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The following interests are represented on Committee MS/48:

Appita  
Australian Archives  
Australian Chamber of Commerce and Industry  
Australian Government Publishing Service  
Australian Institute for the Conservation of Cultural Material  
National Archives (New Zealand)  
National Library of Australia  
National Library of New Zealand

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AS 4003—1996

Australian Standard<sup>®</sup>

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MS/48 on Permanent Paper to supersede AS 4003(Int)—1992.

This Standard is the result of a consensus among representatives on the Joint Committee to produce it as an Australian Standard.

The purpose of this Standard is to define requirements for uncoated and coated permanent paper. Publishers, librarians, archivists, governments and the community can be assured that publications and documents using paper made to these specifications, will be relatively stable and therefore can be expected to survive for long periods without significant deterioration, if stored and used under normal library and archival conditions. Persons concerned with the preservation of library and archival materials are all too familiar with the speed at which acidic paper embrittles. This embrittlement has made probable the loss of the original hard copy of much of the published and written records from the 19th and 20th centuries. By defining permanent paper and encouraging its use, comparable future preservation problems should be prevented.

This Standard is based on and reproduced from ISO 9706, *Information and documentation—Paper for documents—Requirements for permanence*, and contains additional requirements to suit Australian conditions. Use of this Standard meets and exceeds the requirements of ISO 9706.

A Standard for the permanence and durability of archival paper, ISO 15403, is being considered by Technical Committee 46 of the International Organization for Standardization (ISO). Such a Standard will provide a means for ensuring that paper used in records and publications destined to be retained for many hundreds of years are not only of suitable permanence, but also have sufficient durability for the purpose.

At this stage, those chemical and fibre properties of paper known to be critical factors in paper permanence and durability have been specified. Recycled fibres are not specifically excluded from this Standard. Paper properties, such as opacity and stiffness, required for a specific end use and which do not necessarily affect the permanence of paper, are not included. Tests for accelerated ageing are also excluded because of unresolved technological problems.

There is evidence that some papers that do not meet all the requirements of this Standard (e.g. resistance to oxidation) can still exhibit high retention of physical properties after accelerated ageing. At an international level, further research is underway to determine how new papermaking technologies (such as chemi-thermo-mechanical pulping and non-chlorine bleaching) are likely to affect the permanence of paper, to define more precisely the conditions under which higher levels of lignin are compatible with paper permanence, and to revise accelerated ageing tests. Depending on the availability of research results, the next revision of this Standard will reflect results of these investigations.

There are a number of factors beyond the scope of this Standard that affect the permanence of paper. The environmental conditions under which materials are stored are highly significant determinants. The Standard is not intended for judging the permanence of papers stored under hostile conditions such as high humidity, which may promote microbiological attack, excessive heat, radiation (light or other), high levels of atmospheric pollutants, or the influence of water. Other materials that contact the paper may also affect its life, for example those derived from printing and binding processes.

Librarians, archivists, researchers and readers should all benefit from the use of permanent paper for printed materials, documents and other records that are required to be kept for a long time. Specific applications, for which permanent or archival papers should be considered, include the following:

- Important non-fiction and fiction works.
- Scholarly works.
- Collected editions.
- Reference works such as encyclopedias, dictionaries, bibliographies, indexes and abstracts.

- Important musical scores, original art and art reproductions.
- Originals records not appropriate to transfer to other media.
- Legal or commemorative documents such as citizenship certificates and vice-regal matters.
- Master building plans.
- Government records, such as cabinet submissions, cabinet decisions, memorandums of understanding, Royal Commission findings and intergovernmental agreements.
- Scientific papers.
- Documents of Parliament, such as annual reports, Hansard, parliamentary papers and submissions to parliamentary committees.

This Standard recommends that permanent paper be identified wherever it is marketed or used by a statement of compliance with this Standard. This identification will both promote the use of permanent paper and prompt users to consider the physical quality of the materials being used to record information. Papermakers are encouraged to issue or make available a statement of compliance in accordance with AS 3900/NZS 9000/ISO 9000, *Quality management and quality assurance standards*, whenever a batch of paper made to these specifications is produced.

For the purposes of this Standard, where Australian variations are required, the Clauses in the source text have been marked with a vertical bar in the left hand margin and the amended text given in Appendix AA.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

As this Standard is reproduced from an International Standard, the following applies:

- Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- In the source text, ‘this International Standard’ shall read ‘this Australian Standard’.
- A full point substitutes for a comma when referring to a decimal number.
- The references in the source text to International Standards should be replaced by equivalent Australian Standards, as follows:

<i>International Standard or other Publication</i>	<i>Equivalent Australian Standard</i>
ISO	AS
186 Paper and board—Sampling to determine average quality	1301 1301.417s Methods of test for pulp and paper Part 417s: Sampling paper, board and pulp for testing
187 Paper, board and pulps—Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples	1301.P414m Part P414m: Conditioning of paper for testing 1301.P415m Part P415m: Standard atmosphere for paper testing
302 Pulps—Determination of Kappa number	1301.P201m Part P201m: Kappa number of pulp
536 Paper and board—Determination of grammage	1301.405s Part 405s: Grammage of non-creped paper and board
19 4 Paper—Determination of tearing resistance (Elmendorf method)	1301.400s Part 400s: Internal tearing resistance of paper
4046 Paper, board, pulp and related terms—Vocabulary	

ISO		AS	
5127-1	Documentation and information—Vocabulary —Part 1: Basic concepts		
5630-3	Paper and board—Accelerated ageing—Part 3: Moist heat treatment at 80°C and 65% relative humidity		
6588	Paper, board and pulps—Determination of pH of aqueous extracts	1301.421s	Part 421s: Determination of the pH value of aqueous extracts of paper, board and pulp—Cold extraction method
10716	Paper and board—Determination of alkali reserve		

Documents referenced in Appendix AA:

AS

- 1301 Methods of test for pulp and paper  
 1301.451rp Part 451rp: Fibre furnish analysis  
 1301.421s Part 421s: Determination of the pH value of aqueous extracts of paper board and pulp — Cold extraction method
- 3900 Quality management and quality assurance standards (all Parts)

Because Standards are subject to revision, users of this document are encouraged to investigate applying the most recent editions of documents referenced in this Standard.

Australian Archives does not concur with the adoption of this document as an Australian Standard, on the grounds that its current guidelines for permanent paper, intended for use by the Commonwealth Government and its Agencies, are more stringent in a number of respects than those given herein.

Originated as AS 4003(Int)—1992.  
 Revised and designated AS 4003—1996.

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# Information and documentation—Paper for documents—Requirements for permanence

## 1 Scope

This International Standard 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.

## 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 186:1985, *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 536:1976, *Paper and board — Determination of grammage.*

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

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

ISO 5127-1:1983, *Documentation and information — Vocabulary — Part 1: Basic concepts.*

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

ISO 10716:—<sup>1)</sup>, *Paper and board — Determination of alkali reserve.*

## 3 Definitions

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

**3.1 document:** Paper upon which information is recorded (see also ISO 5127-1).

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

**3.3 permanent paper:** Paper which during long term storage in libraries, archives and other protected environments will undergo little or no change in properties that affect use.

NOTE 2 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.

**3.4 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.

<sup>1)</sup> To be published.