INTERNATIONAL STANDARD

ISO 11800

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Information and documentation — Requirements for binding materials and methods used in the manufacture of books

Information et documentation — Prescriptions pour les matériaux et méthodes de reliure utilisés dans la fabrication des livres

Contents

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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 11800 was prepared by Technical Committee ISO/TC 46, *Information and documentation,* Subcommittee SC 10, *Physical keeping of documents.*

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

Introduction

The usability and durability of books held in libraries and archives is a matter of natural concern to the public. Private book buyers and readers have a similar interest in such lasting qualities of the books they purchase. Books, in principle, should remain in good physical condition for as long as their contents are worth preserving. They should be manufactured to meet the requirements of their intended use.

Industrialized manufacturing methods, unfortunately, have not improved the quality of the average book. An increasing percentage of recently produced books tend to fall apart prematurely. Tests in library laboratories and simple observation show that some of the core problems lie in the binding materials and binding methods. Libraries and archives around the world are concerned about the consequences. It is envisaged that, more and more, recently acquired books will either fall apart before they are withdrawn from the collection for textual reasons, or they will have to be replaced or rebound. In either case, library and archival systems worldwide are likely to face enormous expenses in the future if the quality of the average book is not improved. This, for many public, academic and special libraries, could be an incentive to become more selective in their acquisitions and to buy fewer new titles.

This International Standard addresses publishers and book manufacturers. It also addresses acquisition librarians and archivists with a view to informing library and archival staff about the good physical properties they should expect in the books they acquire for public use. The purpose of this International Standard is to provide a means of specifying manufacturing methods and binding materials to be used for the production and making of quality books.

Good quality book bindings should be capable of withstanding ordinary use for a satisfactory period of time without significant breakdown of the binding structure. The properties of a durable book explicitly include the permanency of all the component parts, including its paper, the secure attachment of its leaves together, preferably by sewing, to form the book block, the secure attachment of the book block to its protective cover, and the resistance of the cover to the effects of abrasion, soiling and exposure to light. The concept of durability includes the attribute of flexibility, i.e. the ability of a book to open well without stress under normal reading conditions.

For heavy wear, long-term keeping and eventually rebinding of the book block, adhesive binding is not considered by this International Standard to be as recommendable as sewn binding. For that reason, adhesive binding is not an integral part of this International Standard. Yet adhesive-bound books can be manufactured to meet such simple requirements as the secure attachment of their leaves together to form the book block, the secure attachment of the book block to its protective cover and some resistance of both paper and cover materials to the effects of wear and deterioration. Guidelines for the manufacture of well-produced adhesive-bound books, therefore, are included as an annex to this International Standard. The requirements for adhesive binding include the minimum requirements for acceptable bookbinding under circumstances mentioned in the scope of this International Standard, described in clause C.1 of annex C, and further explained in annex D. For the sake of expediency, the numbering scheme applied in annexes A and B of this International Standard is repeated in the Guidelines for adhesive-bound books in annex C.

Of concern regarding both sewn and adhesive binding are those methods and materials that affect the ease with which a volume can be rebound or repaired. With this in view, and to ensure that books will open easily when in use, this International Standard also includes minimum requirements for the size of the inner margins which must be respected during the imposition of the text matter.

Information and documentation — Requirements for binding materials and methods used in the manufacture of books

1 Scope

This International Standard specifies manufacturing methods and materials that will result in durable hard cover and soft cover binding for books manufactured in commercial quantities. It does not apply to hand bookbinding, individual casing or binding of archival matter. Nor does it apply to fine binding which does not serve its normal purpose of primarily protecting a book block (such as sculptural art formed around book-like material).

This International Standard has two normative annexes and one annex with a set of guidelines, each specifying the requirements for its special category of binding.

Category A binding (annex A) is intended

— for books of permanent retention;

— for books produced with a view to heavy use over prolonged periods, e.g. reference works;

— for valuable volumes requiring lasting protection;

— for items having lasting aesthetic value.

Category B binding (annex B) is intended

— for books and periodicals in soft cover and of permanent retention;

— for books and periodicals produced with a view to heavy use over prolonged periods;

— for valuable volumes requiring lasting protection;

— for items having aesthetic value.

Guidelines that specify recommended manufacturing methods and materials for soft cover and hard cover adhesive-bound books are given in annex C. Annex D contains information regarding the fields of application suggested for category A and B bindings and for adhesive-bound books.

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

ISO 534:1988, *Paper and board — Determination of thickness and apparent bulk density or apparent sheet density.*

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

ISO 2758:1983, *Paper — Determination of bursting strength.*

ISO 2835:1974, *Prints and printing inks — Assessment of light fastness.*

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

ISO 5081:1977, *Textiles — Woven fabrics — Determination of breaking strength and elongation (Strip method)*[1]*.*

ISO 5127-2:1983, *Documentation and information — Vocabulary — Part 2: Traditional documents.*

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

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

ISO 9665:1993, *Adhesives — Animal glues — Methods for sampling and testing.*

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

ANSI L29.1-1977 (R1984), *Fabrics for Book Covers*[2]*.*

3 Definitions

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

3.1
adhesive binding
type of binding, hard cover or soft cover, in which the signatures are milled and the separate sheets glued together by means of an adhesive

3.2
adhesive line
width of adhesive applied to a material prior to attaching it to another material

3.3
alkaline buffered paper
paper with a pH equal to or higher than 7,0, and containing a compound (e.g. calcium carbonate) at a level sufficient to neutralize acid generated from degradation of the paper, from adjacent materials, or from atmospheric pollution

3.4
animal glue
natural glue prepared by adding glycerine to high-quality hide glue

3.5
bind
to fasten sheets together and to attach them to protective covers, which may be made of a variety of materials, e.g. paper, board, cloth

3.6
binder's board
rigid, solid board, made from a base stock of paper pulp, and of a grammage of 225 g/m^2 or more

1) ASTM D 5035-90, *Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Force)* is technically identical to ISO 5081.

2) May be obtained from ANSI at the address: 11 West 42nd Street, 13th floor, New York, N.Y. 10036, USA.

3.7
bursting strength
maximum uniformly distributed pressure, applied at right angles to its surface, that a test piece will stand before it breaks under the conditions defined in the standard test methods

3.8
casing-in
process of applying adhesive to the outermost endpapers of a book block and fitting the book block into its case

3.9
cross-link
setting up of chemical links between the molecular chains of polymers, resulting in embrittlement of the object

3.10
endpaper
folded sheet of paper attached to the book block, the outer sheet to face the inner side of its board; adhesive is applied to the outer page of each endsheet when the book block is cased in

3.11
EVA hot-melt (Ethylene vinyl acetate co-polymer)
thermoplastic adhesive made of ethylene vinyl acetate co-polymer, with fast-setting qualities but low resistance to environmental factors and ageing

3.12
folding endurance
logarithm (to the base of 10) of the number of double folds required to cause rupture in a strip of paper 15 mm wide tested under applied standard stress conditions

3.13
forwarding
steps in binding that take place after sewing and prior to a book being cased in; usually it includes rounding, backing and lining the spine and it may include tipping-in the endpapers

3.14
gluing-off
process of applying adhesive to the spine of the book block after sewing

3.15
hard cover book
book bound in a rigid material, usually binder's board, made either from sewn leaves or as an adhesive binding from sheets glued together

3.16
hot-melt adhesive
family of polymer adhesives often applied in commercial publisher's bindings to non-standard sewn or adhesive book blocks

NOTE — The term is often used to mean EVA hot-melt, cf. 3.11.

3.17
inner margin
unprinted space between the printed area of a page and the centrefold of the signature

3.18
insert
sheets or signatures, usually with illustrations, printed separately from the text and sewn or pasted into the book block during binding

3.19
lining
materials (cloth and paper) adhered to the spine of the book block or the spine of the case

3.20
machine direction
direction in a paper or a board corresponding to the direction of travel of the web on the paper or board machine

NOTE — Machine direction is often but not necessarily always identical with "grain direction", the direction in which the majority of fibres lie in a sheet of machine-produced paper or board.

3.21
milling
process of preparing the book block for adhesive binding by milling the binding edge

3.22
nipping
applying pressure to the book block after sewing and gluing-off the back to reduce swelling caused by the thread

3.23
notching
cutting grooves across the spine of the book block prior to the gluing process in the production of adhesive bindings, in order to increase the area of adhesion

3.24
overhang
protrusion of some leaves over others in an untrimmed book block or of the squares over a trimmed book block

3.25
permanent paper
paper which during long-term storage in libraries, archives and other protected environments will undergo little or no changes in properties that affect use

3.26
PUR-melt (Polyurethane)
melt-adhesive for binding purposes made from polyurethane and produced by emulsion polymerization

NOTE — PUR-melt differs from traditional hot-melt by having improved ageing qualities and resistance to environmental factors, as well as having better adhesive qualities, in particular on coated stock. It differs from PVAc by having faster setting.

3.27
PVAc (Polyvinyl acetate emulsion)
synthetic vinyl resin adhesive, polyvinyl acetate emulsion, produced from its monomer by emulsion polymerization

NOTE — PVAc is characterized by strong adhesive qualities and resistance to environmental factors and ageing, but has rather slow setting qualities. It differs from melt adhesives, in particular from PUR-melt, by demanding less costly binding machinery.

3.28
rounding and backing
shaping of a book block by a special machine (or by hand) after trimming and before lining

NOTE — Rounding results in the characteristic convex spine and concave fore-edge of a hard cover book. Backing causes the sewn edges of the signatures to fan out, producing a hinge for the cover boards to turn against after the book is bound.

3.29
signature
printed sheet folded to form one section of a book

NOTE — Signatures are trimmed or cut on all three open edges after the book block has been sewn. In adhesive binding, the fourth (spine) edge is also cut. A signature typically has 8 or 16 leaves (16 or 32 pages), although any multiple of 2 leaves is possible.

3.30
soft cover book
book bound in flexible material, usually paper or light board, that can be made either from sewn leaves or as an adhesive binding from sheets glued together

3.31
spine inlay
strip of paper or board used to stiffen the spine of the case of a binding

3.32
squares
board edges that extend beyond the book block at the head, tail and fore-edges of a book

3.33
super
coarse cloth glued to the back of the book block, forming the first lining of a case-bound book

NOTE — The denser the weave of the cloth, the stronger the case attachment. Super is often termed "mull" after the most commonly used cloth material.

3.34
tensile strength
maximum tensile force that a test piece will stand before it breaks under the conditions defined in the standard test methods

The definitions applied in this International Standard comply with those of ISO 4046, ISO 5127-2 and ISO 5626. They have been augmented by specialized binding terms applied in ANSI/NISO Z39.66-1989: *Durable Hard-Cover Binding for Books.*

4 Principles

As a consequence of their broad scope, the requirements in this International Standard are as brief and general as possible. They do not prescribe specific binding equipment or trade-mark materials. Instead they are a description of some single, but crucial, stages in the binding of books that should be closely observed if the finished volumes are to remain in good shape and be useful for years, decades or longer.

By intent, this International Standard realistically takes into account what can be efficiently produced at reasonable cost in a modern book production facility. For this reason it restricts itself to only such methods, techniques and kinds of material which are considered worldwide as a generally acceptable minimum.

Wherever possible, the requirements are stated in exact figures relating to testing methods well-known in book production plants and binderies all over the world. Any reference to board and paper is expressed in terms used by the producers or suppliers of such materials. Any specified treatment applied to cover materials is stated in terms generally known by manufacturers of such materials.

5 Required characteristics

The requirements for the binding materials and manufacturing methods for hard cover and soft cover books are listed in two normative annexes A and B. Also appended is a set of guidelines in annex C, containing recommendations for the production of soft cover and hard cover adhesive-bound books. The three annexes identify three different categories of binding materials and manufacturing methods.

In order to facilitate comparison between requirements/recommendations for different binding types, a uniform clause numbering structure has been adopted for all three annexes. As a consequence, a number of headings in annexes A and B do not indicate any specific recommendation for category C binding.

6 Statement of compliance

All book manufacturers and book binders are encouraged to use and promote the use of a statement of compliance with ISO 11800 on each binding that meets the requirements of this International Standard.

Compliance with this International Standard can be claimed only by adopting one of the two text lines which indicate compliance with the full requirements in either annex A (for category A binding) or annex B (for category B binding).

The text line shall be set in a single line in Helvetica or a similar sans-serif form of type in one line as follows:

Category A: ISO 11800 BINDING — Cat. A

Category B: ISO 11800 BINDING — Cat. B

The text line to be adopted shall be either stamped or printed in the lower right corner on the outside back board or cover of the book, and shall have a minimum height of 2 mm and maximum height of 4 mm.

Books produced in accordance with the guidelines in annex C may make known such compliance by the following statement in the colophon:

"This book has been produced in accordance with the guidelines for adhesive-bound books in ISO 11800, annex C".

Annex A
(normative)

Category A binding — Sewn hard cover binding

A.1 Fields of application

Category A binding is intended for books exposed to heavy use over prolonged periods, for lasting protection of valuable books and for other hard cover books of which the binding is a significant part. e.g. bibliophile issues. (See annex D.)

A.2 Book block requirements

A.2.1 Paper

All paper used for the book block, including flyleaves, endpapers, spine inlays and paper for inserts, shall meet in full the specifications of ISO 9706. Differences in grammage and flexibility between the paper used for the book block and paper for inserts shall be as slight as possible. The machine direction of all paper used for the book block, including paper for inserts, shall run parallel to the binding edge.

NOTE — According to normative annex A of ISO 9706:1994, use of a symbol and a statement of compliance as described in that annex is encouraged for books printed on paper meeting the requirements of ISO 9706.

A.2.2 Signatures

The book block shall be gathered from one or more signatures which shall all retain their folding edge. A folded signature shall not exceed 2,5 mm in thickness and shall be well pressed. If the imposition plan results in an odd-sized signature, i.e. a signature with a number of pages different from the others, this signature shall be placed between full-sized signatures.

A.2.3 Size of book block

For convenience of use and to avoid undue strain on the binding structure, the thickness of the book block shall not exceed 64 mm.

A.2.4 Margins

The text shall be imposed so that the inner margin measures at least 14 mm on both sides of the fold of the signature. For page sizes wider than 144 mm, each inner margin shall measure at least 1/9 of the page width.

A.3 Binding methods

A.3.1 Endpapers

Endpapers shall be formed from single sheets of paper folded in half. Endpapers shall be attached to the front and back signatures either by sewing or by tipping-in. If tipping-in is used, the fold of each endpaper shall line up with the fold of the signature with a tolerance of 1,5 mm. The adhesive line shall then be straight and not exceed 5 mm in width.