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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3781 was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*.

This third edition cancels and replaces the second edition (ISO 3781:1983), of which it constitutes a minor revision. It is no longer applicable to tissue paper or tissue products, which are covered by ISO 12625-5. In addition, precision data have been added.

Paper and board — Determination of tensile strength after immersion in water

1 Scope

This International Standard specifies a test method for the determination of the wet tensile strength of paper or board after its immersion in water for a specified period.

In principle, the method is applicable to both paper and board, provided an appropriate soaking time is agreed between the interested parties.

This International Standard is not applicable to tissue paper and tissue products or other lightweight, highly absorbent paper which is difficult to handle or of low strength when wet (see ISO 12625-5[1]).

NOTE The tensile strength testing is performed using an apparatus operating at a constant rate of elongation of 20 mm/min, as per ISO 1924-2, or 100 mm/min, as per ISO 1924-3. Therefore, depending on which method is chosen, only one or the other of those International Standards is needed for performing the test.

2 Normative references

The following referenced documents are indispensable for the application 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 1924-2, *Paper and board — Determination of tensile properties — Part 2: Constant rate of elongation method (20 mm/min)*

ISO 1924-3, *Paper and board — Determination of tensile properties — Part 3: Constant rate of elongation method (100 mm/min)*

ISO 14487, *Pulps — Standard water for physical testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
wet tensile strength
maximum tensile force per unit width that a test piece soaked with water will withstand before breaking in a tensile test

[SOURCE: ISO 12625-5:2005, definition 3.1]

Note 1 to entry: It is expressed in kilonewtons per metre.

3.2
wet tensile strength retention
ratio of the tensile strength of a wet test piece to that of another test piece from the same sample in the dry, conditioned state

Note 1 to entry: It is expressed as a percentage.