WI 230808.02

T 496

BALLOT NO. 02 SARG

DRAFT NO. 01

DATE October 26, 2023

WORKING GROUP CHAIR N/A

SUBJECT CATEGORY Physical Properties

RELATED METHODS See "Additional Information"

CAUTION:

This Test Method may include safety precautions which are believed to be appropriate at the time of publication of the method. The intent of these is to alert the user of the method to safety issues related to such use. The user is responsible for determining that the safety precautions are complete and are appropriate to their use of the method, and for ensuring that suitable safety practices have not changed since publication of the method. This method may require the use, disposal, or both, of chemicals which may present serious health hazards to humans. Procedures for the handling of such substances are set forth on Material Safety Data Sheets which must be developed by all manufacturers and importers of potentially hazardous chemicals and maintained by all distributors of potentially hazardous chemicals. Prior to the use of this method, the user must determine whether any of the chemicals to be used or disposed of are potentially hazardous and, if so, must follow strictly the procedures specified by both the manufacturer, as well as local, state, and federal authorities for safe use and disposal of these chemicals.

Specimen preparation for cross directional internal tearing resistance for paper, paperboard and related materials

Five-year review of Standard Practice T 496 sp-2019

Approved by the Standard Specific Interest Group for this Standard Practice
TAPPI

1. Scope and significance

1.1 This practice is used for the preparation of test specimens for the internal tearing resistance of paper, board, and related materials when a force is applied perpendicular to the machine direction. Materials whose structures are highly directional cannot be properly tested in their cross direction according to TAPPI T 414 "Internal Tearing Resistance of Paper (Elmendorf-Type Method)," because, as a rule, the tear turns toward the machine direction as it proceeds. Consequently, it is usually impossible to make a test tear of such a material truly in the cross direction. This practice has been devised to permit the tear to proceed as it will, but more or less limits the extent of the tear to the prescribed 43 mm.

1.2 For the sake of uniformity, this procedure may be used to determine the tearing resistance in the machine direction.

2. Apparatus

Specimen cutter, a die and press to cut specimens in accordance with the dimensions and shape shown in Fig. 1. If not available, a template, sharp knife, and hard-wood block may be used.

3. Sampling and test specimen

From each test unit obtained in accordance with TAPPI T 400 "Sampling and Accepting a Single Lot of Paper, Paperboard, Containerboard, or Related Product," cut at least ten specimens of the shape and size shown in Fig. 1. with the 86-mm dimension in the machine direction of the paperboard. The depth of the V-shaped cutout is not critical, since it is merely used as an aid in centering the specimen accurately in the clamps of the tearing apparatus.

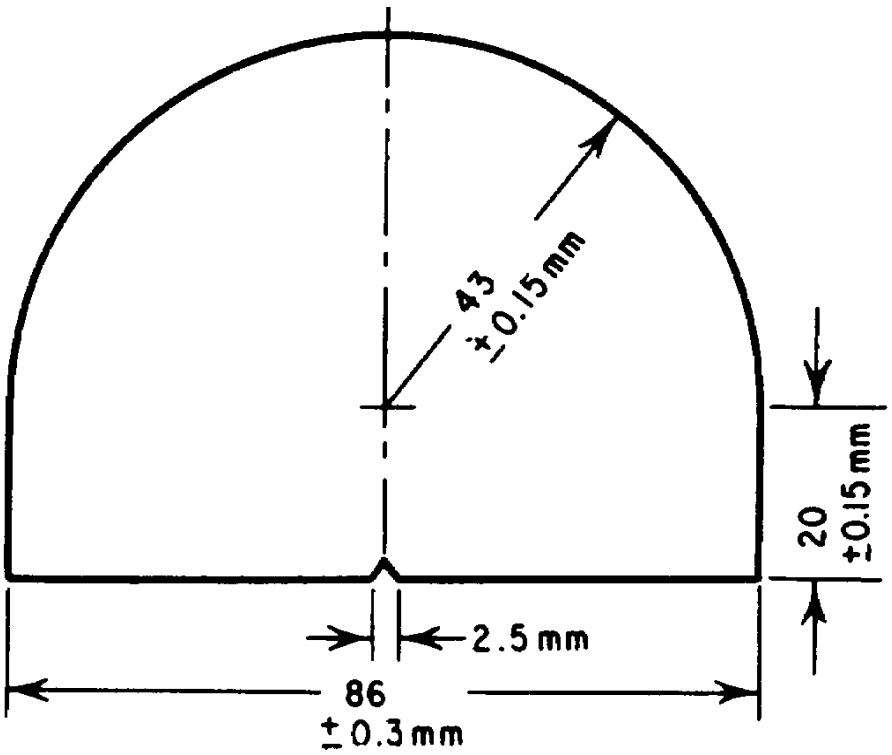

Fig. 1. Specimen for cross-direction internal tear testing of paperboard.

4. Conditioning

Condition and test the specimens in an atmosphere in accordance with TAPPI T 402 “Standard Conditioning and Testing Atmospheres for Paper, Board, Pulp Handsheets, and Related Products.”

NOTE 1: The V-cutout is not required if the specimen can be accurately positioned in the clamp by other methods of measurement.

5. Procedure

5.1 Set up and calibrate the internal resistance instrument in accordance to manufacturer’s instructions.

5.2 Mount the semicircular test specimen with the 86-mm edge resting on the bottom surfaces of the clamps, and with the top surface or liner (or printed side) facing the pendulum. Slit the specimen at right angles to the top of the jaws exactly to the center of the semicircle. Measure the tearing resistance of the specimen per manufacturer’s instructions and note in the report that the test was performed on a cross direction (semicircular specimen).

5.3 If the side of the specimen above the clamp rubs against the perdulum as a tear test is made, reject that reading. If a particular sample tears so that such contact consistently occurs, reverse the test specimens, so that the top

liner faces away from the pendulum and note this modification in the report.

5.4 For the sake of uniformity, this procedure may be used to determine the tearing resistance along the machine direction. If this is done, the results will be somewhat lower than if tested according to T 414 "Internal Tearing Resistance of Paper (Elmendorf-Type Method)," because the work done to bend a semicircular specimen is less than for a rectangular specimen. Accordingly, tests so made should be reported as internal tearing resistance, machine direction (semicircular specimen).

6. Report

Report the results as internal tearing resistance, cross direction or machine direction (semi-circular specimen).

7. Precision

A precision statement is not required for a Standard Practice.

8. Keywords

Tearing resistance, Cross direction tear, Paper, Paperboard, Nonwovens, Sample preparation

9. Additional information

9.1 Effective date of issue: To be assigned.

9.2 Revised and reissued as a Standard Practice in 1998. In the 2008 edition, the procedure section was modified to place more emphasis on testing per manufacturer's instructions. In 2012 only minor editorial changes were made.

9.3 This method differs from the previous version issued in 1964 in that the arbitrary statement regarding dropping of high or low values has been removed from the procedure section. Any dropping of high or low values should be done in accordance with TAPPI T 1205 "Dealing With Suspect (Outlying) Test Determinations."

Your comments and suggestions on this procedure are earnestly requested and should be sent to the TAPPI Standards Department.

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