

T 541 om-99

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OFFICIAL TEST METHOD – 1989
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CAUTION:

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 test method, the user should 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.

Internal bond strength of paperboard (z-direction tensile)

1. Scope and summary

1.1 This method describes a procedure for measuring the internal fiber bond strength (z-direction tensile strength) of paperboard using an instrument that subjects a normal separation force to a 6.45-cm² (1-in.²) specimen.

1.2 The procedure consists of applying double (two-sided) coated, pressure-sensitive tape to both sides of a test specimen. The specimen is then placed between two platens and compressed uniformly over the entire specimen surface area. Uniform tension is then applied over the entire test area in a direction perpendicular to the plane of the sample (z-direction) to affect a separation.

1.3 The test is intended for paperboards and some papers which have an internal fiber bond strength (cohesive strength) lower than the adhesive bond strength of the tape to the specimen and/or test platens. The material the platens are made from will affect the adhesive strength between platen and tape. The selection of tape may also affect test results. These effects may be seen as tape failures or in some cases higher test values caused by adhesive migrating into sample. The adhesive bond strength of the tape is critical to reproducible test results. New batches of tape should be tested for consistent bond strength. Bond strength can be tested by performing peel tests off standard test palates, or by testing a stable reference sample.

2. Significance

2.1 The internal bond strength of paperboard provides an indication of expected performance, e.g., strength of board in relation to glue bonding at carton side seams, and possible delamination on scoring, or use of high tack coatings.

2.2 This method has also been found useful for the evaluation of coated fine papers.

2.3 The results must be interpreted according to each user's requirement and to each end use.