

Stiffness – Taber, L&W, Gurley

Bending stiffness is an expression of the of the rigidity of paper or paperboard. This property is related to the modulus of elasticity or the product and its thickness. There are several instruments in use in the industry that measure stiffness, and they all bend the product to measure stiffness. There are 2-point bending instruments and 4-point bending instruments. Solid fiber board and small fluted combined board (to be used in folding cartons) are typically measured with 2-point bending instruments.

Commonly used instruments include Taber (TAPPI Test Method T489), Gurley (TAPPI Test Method T543) and L&W (TAPPI Test Method T556). In the USA, Taber Stiffness is the most common stiffness measurement. In Europe, L&W is most common.

When stiffness is reported it is important to know how much bending took place. The typical Taber Stiffness test for solid fiber board uses a 15 degree bending. Small flute combined board cannot be bent to 15 degree without damaging the product, so it is necessary to bend it to a lesser angle of 7.5 degrees. We discard results when we recognize the sample was damaged at 7.5 degrees.

The L&W instrument can be set to reach an end-point at various degrees of bending. We use an angle of 5 degrees when testing small flute products on this instrument. This helps assure that the sample is not damage and is a common bending angle used in Europe.



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