

T 545 om-19

OFFICIAL METHOD – 1993
REVISED – 1998
REVISED – 2003
REVISED – 2007
REVISED – 2011
REVISED – 2019
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Cross-machine grammage profile measurement (gravimetric method)

1. Scope

1.1 This method describes a procedure which can be applied to determine the variation in mass per unit area in the cross-machine direction, commonly referred to as the grammage (or basis weight) profile. This method is appropriate for the acceptance testing of both the papermaking process and the product.

1.2 This method is laborious, but it is reliable and accurate. It requires simple, well-defined operations: cutting out samples, weighing samples, and data evaluation.

1.3 The general procedures outlined in TAPPI T 410 "Grammage of Paper and Paperboard (Weight Per Unit Area)" and in TAPPI T 402 "Standard Conditioning and Testing Atmospheres for Paper, Board, Pulp Handsheets, and Related Products" are used as basic references for this method.

2. Summary

The cross-machine grammage (basis weight) profile is determined by sampling 20 consecutive cross-machine layers from the outer layers of a parent reel, preconditioning the samples, cutting the layers into a series of rectangular sheets 200 mm CD × 300 mm MD, discarding those sheets with obvious defects, conditioning the samples, and weighing the samples. The sample weights are then analyzed using analysis of variance to determine the MD, CD, residual, and total standard deviations.

3. Significance

The evaluation of grammage variation from measurements on cross-machine direction strips is a useful way to analyze the performance of a paper machine. This method provides sufficient accuracy and repeatability to be used for acceptance testing of the papermaking equipment and for product specification.