AUSTRALIAN STANDARD
Prepared by the Appita Testing Committee. Endorsed as Part of AS 1301 by Standards Australia—November 1989. Endorsed as suitable for use in New Zealand by the Standards Council of New Zealand.

AS 1301.208s-89
Recommended Practice—October 1958
Tentative Standard—March 1961
Standard—August 1964
Revised—May 1975
Revised—January 1983
Revised—November 1989

PHYSICAL TESTING OF HANDSHEETS

This method relates to the testing of pulp handsheets for physical and mechanical properties. Tests for optical properties are not included. The tests are made by the AS 1301 Standards for paper, which in some cases are modified to meet the special requirements of testing handsheets. Tests other than those listed here may be conducted on pulp handsheets provided the test method has been negotiated in advance and full details of it are given in the report.

A plan for cutting eight handsheets to do those tests normally required by pulp users is given. The plan is only for the purpose of illustration, and may be modified according to the tests to be made and the number of specimens to be tested. It has been shown that testing four handsheets per set is adequate for some purposes (Reference 16.1).

For accurate and reproducible results the procedure for forming, conditioning and testing the handsheets must be followed closely, and the testing instruments must be kept in the condition required by the pertinent paper-testing methods.

The method is based on the British procedure of 1936 (Reference 16.2). However this edition of the method differs from all previous editions in that it indicates a preference for calculating each strength index from conditioned grammage. Previous editions prescribed calculation of strength factors from oven-dry grammage.

1. NUMBER AND GRAMMAGE OF HANDSHEETS

Prepare a set of handsheets by the procedure in AS 1301.203. A set consists of as many acceptable (see 2.1) handsheets as are required for the tests to be done, normally at least 8, each with a nominal grammage (oven-dry basis) of 60 g/m^2 (Note 15.1) or 4, each with a nominal grammage of 120 g/m^2. If required the o.d. grammage may be determined by the procedure described in Appendix A.

2. CONDITIONING

2.1 Examine the handsheets and discard any which are damaged or have a perceptible fault, e.g. uneven thickness or froth marks, which might affect the test result.

2.2 Condition the handsheets in the standard atmosphere prescribed in AS 1301.415 in such a way that the air has free access to all surfaces. Handle the handsheets as little as possible. Unless the conditioning time is known from previous experience, continue the conditioning until the mass of the handsheets is constant when weighed at hourly intervals.

Weigh each handsheet to the nearest 0.001 g. Select for testing the handsheets with the least variation in mass and formation: the remainder may be kept for future reference.

Test the conditioned handsheets in the standard atmosphere, taking care to handle the test pieces as little as possible.

3. GRAMMAGE

If the conditioned grammage of the selected handsheets is to be used for the calculation of each strength index, determine it in g/m^2 by either of the following methods. Method A is the more precise and is taken as the standard, but Method B is sufficiently accurate for most purposes.

If the o.d. grammage is to be used for the calculation of each strength index, determine it according to Appendix A.

3.1 Method A. Measure the area of each tear test piece to the nearest 0.1 cm^2. If it can be demonstrated that the cutting technique used in 6.1 is sufficiently consistent, it is not necessary to measure the area of every test piece. For example, if test pieces are cut in sets of four on a precision guillotine, it should be acceptable to measure one ply of a set and assume that all pieces cut on the same guillotine will have the same area. The criterion is that the area must be known to within 0.1 cm^2. Weigh the test pieces together to the nearest 0.001 g. Calculate the conditioned grammage from the relationship:

$$G = \frac{10\,000m}{A}$$

where G = conditioned grammage in g/m^2
m = conditioned mass of the test pieces in g
A = the sum of the areas in cm^2 of the test pieces weighed.

ISBN 0 7262 5873 3

UDC 676.017