

Australian/New Zealand Standard™

Methods of test for pulp and paper

**Method 010s: Determination of
moisture in wood chips**



AS/NZS 1301.010s:2002

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The following are represented on Committee PK-019:

Appita Inc.
AusInfo
CSIRO Forestry and Forest Products
Forest Research (New Zealand)
National Association of Forest Industries
New Zealand Pulp and Paper Industry Association
Printing Industries Association of Australia
Pulp and Paper Manufacturers Federation of Australia

Additional interests participating in the preparation of this Standard:

Paper manufacturers
Pulp manufacturers
Research interests
Manufacturers of paper testing instruments
Suppliers of paper testing instruments

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Foreword

This standard was prepared by Joint Technical Committee PK-019, Methods of Test for Pulp and Paper, as a part of AS/NZS 1301, *Methods of test for pulp and paper*.

This edition cancels and replaces AS 1301.P10rp — 1986 and NZS 1301.P10rp:1986.

This revision has been made to include the oven-drying method for determination of moisture content.

Since 1986 the 'P' has been omitted from the AS 1301 number identification; but, until all AS 1301 standards are reprinted the 'P' will continue to appear in some of them.

Introduction

This method details two procedures for determination of moisture content of wood chips. One is the oven-drying method and is a reference method. The other is the distillation method which is a rapid control test for the mill situation. It is based on the distillation of water from a known mass of chips, using a water immiscible organic liquid as the distilling medium. An all-metal still is used for this purpose, specially designed to give maximum heat transfer efficiency. The mill control method should be regularly checked against the reference method.

Similar standards are TAPPI T208om-94, SCAN CM 39:94 and CPPA A.10P:1993.

Determination of moisture in wood chips

1 Scope

This Standard prescribes two procedures for the determination of moisture content of wood chips. The two procedures are the oven-drying method and the distillation method.

2 Normative references

The following standard contains provisions which, through reference in this text, constitute provisions of AS/NZS 1301.010s. At the time of publication, the edition indicated was valid. All standards are subject to revisions, and parties to agreements based on AS/NZS 1301.010s are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below.

AS/NZS 1301.013rp:1999, Sampling of wood chips for testing.

3 Principle

For the oven-drying method the sample is dried to a constant mass at $105 \pm 2^\circ\text{C}$. For the distillation method the sample is boiled in a water immiscible organic liquid. The resultant water vapour is condensed, collected and measured.

4 Apparatus

4.1 Oven-drying method

4.1.1 Drying oven, capable of being maintained at an air temperature of $105 \pm 2^\circ\text{C}$ in the useable volume and having forced ventilation.

4.1.2 Balance, capable of weighing the test specimen and specimen container to within $\pm 0.1\text{g}$.

4.1.3 Specimen containers, for the transporting and weighing of test pieces, made from a lightweight material not subject to change under conditions of drying.

4.1.4 Desiccator, of a size sufficiently large to accommodate the specimen container and equipped with air-tight lid/door and containing fresh desiccant.

NOTE 1 — A desiccator is not required if the laboratory elects to weigh hot specimens (see NOTE 5).

4.2 Distillation method

4.2.1 Chip retort and condenser Various designs of retort and condenser could be used. The following describes one design which has been found to be satisfactory:

- a) The retort consists of a copper-bottomed body of approximately 1500 mL capacity, and a head approximately 200 mm high. The head and body are connected by a flange joint. Wing nuts are fitted to the connecting bolts so that the retort can be dismantled without the use of tools, and a flexible gasket is used to ensure a leak-free seal between the head and body of the retort. The head, and the walls of the body are lagged to minimize heat loss.
- b) The condenser consists of approximately 2.7 m of water-jacketed copper pipe. Detailed drawings of a suitable chip retort and condenser may be obtained from Appita on request.