AS/NZS 1301.215s:2007

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 215s: Removal of latency

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The following are represented on Committee PK-019:

Australian Plantation Products and Paper Industry Council (A3P)
Appita
CSIRO Forestry and Forest Products
Ensis Papro, SCION
National Association of Forest Industries

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Foreword

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

This edition cancels and replaces AS/NZS 1301.215s—1997.

The revision is necessary to make several improvements of an editorial nature and to describe the procedural steps in a more logical sequence. A greater emphasis is also placed on one key step in the method; the need for cooling to be rapid.

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

Introduction

In the manufacture of mechanical pulps, such as refiner pulps produced at high temperature and high concentration, distortions of the fibre structure may be produced and are preserved if the hot pulp stock is cooled while the concentration remains high. Under these circumstances certain physical properties of the pulp are inhibited. The release of these latent properties can usually be achieved by agitating the fibres at low concentration and elevated temperature.[1,2,3] This standard describes a method by which this 'latency' may be removed by hot disintegration in a disintegrator before handsheets are prepared and tested.

ISO 5263-3 *Pulps—Laboratory wet disintegration* Part 3: *Disintegration of mechanical pulps at ≥85°C* describes a similar procedure but it does not specifically emphasize the need to rapidly cool the disintegrated fibres.

Removal of latency

1 Scope

This standard sets out a method for the removal of latency from all high yield pulps that have been produced at elevated temperature and cooled before the concentration is reduced. The method involves disintegration at low consistency and elevated temperature followed by rapid cooling to an even lower consistency. To ensure rapid cooling, the use of ice is recommended.

2 Normative references

The following documents are referred to in this Standard.

AS/NZS
1301.214s Equipment for preparation of handsheets

3 Apparatus

3.1 Disintegrator, conforming to the requirements prescribed in AS/NZS 1301.214s.

3.2 Means of heating the disintegrator, sufficient to maintain the contents at a temperature of 90 ±5°C during the whole of the disintegration. Disintegrators with built-in heating are available commercially.

4 Preparation of sample

Take a representative sample of the pulp. If the pulp cannot be processed immediately, store the sample in a cool dark place. Protect dry pulp from dust by wrapping or by use of dustproof containers. Store slush pulp and moist pulp samples in airtight containers.

NOTE 1 — The properties of mechanical pulps change rapidly on storage. Pulp samples should not be stored before processing, but if storage is unavoidable, the time of storage should be minimized.

5 Determination of moisture content

Take a subsample of the pulp for determination of moisture content, ensuring that the subsample is representative of the sample in terms of moisture content. Determine the moisture content of the subsample by a suitable method. While moisture content is being determined, ensure that the moisture content of the remainder of the sample, or the portion of it which is to be used for making handsheets, does not change substantially, if necessary by sealing it in a moisture-proof container.

NOTE 2 — The moisture content of the sample may be determined by any convenient and sufficiently reliable method to permit the mass of the charge to meet the limits specified. Two recommended procedures are as follows:

(a) Heat a weighed subsample of pulp at a temperature of 105 ±2°C in an air oven until constant mass is attained.

(b) Dilute a weighed subsample of pulp in a known volume of water and form a pad or sheet of fibres from an aliquot of the dilute stock so that no fibre is lost, squeeze out excess water and dry the pad or sheet as in (a) or by using a hotplate.

6 Procedure

Safety Note: The method deals with boiling water and hot pulp, both of which can cause scalds and burns. Exercise care. Do not hurry. The wearing of glasses and gloves is recommended to help protect from splashing. Use only sturdy containers.