AS/NZS 1301.013rp:2007
Reconfirmed 2017

AS/NZS 1301.013rp:2007

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 013rp: Sampling of wood chips for testing

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee PK-019, Methods of Test for Pulp and Paper. It was approved on behalf of the Council of Standards Australia on 21 June 2007 and on behalf of the Council of Standards New Zealand on 22 June 2007.
This Standard was published on 10 August 2007.

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

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 07211.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF
AS/NZS 1301.013rp:2007
Methods of test for pulp and paper
Method 013rp: Sampling of wood chips for testing

RECONFIRMATION NOTICE

Technical Committee PK-019 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 4 April 2017.

Approved for reconfirmation in New Zealand on behalf of the Standards Council of New Zealand on 10 August 2017.

The following are represented on Technical Committee PK-019:

Appita
New Zealand Paper Forum
Monash University
Scion

NOTES

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 013rp: Sampling of wood chips for testing

Originated as AS/NZS 1301.013rp:1999.
Second edition 2007.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8322 8

Contents

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 1301.013rp:1999.

Introduction

Properties of wood chips, such as dry matter content and size distribution, may vary considerably within a lot. This may be due to a number of factors, such as variability in the origin of the logs chipped, the chipping technique, the way in which the chips were loaded and transported and weather conditions during storage.

When determining a property of a lot, it is common practise to obtain a subsample for testing. In order to obtain test results that represent the average value of the required property, as would be obtained if the lot were thoroughly mixed, it is common practice to follow more or less well defined sampling procedures. These sampling procedures are designed to ensure that all parts of the lot have an equal chance of being represented in a gross sample.

Another reason for having defined sampling procedures is to avoid the risk that the sample deviates from the bulk of material from which it is taken because of fractionation induced by the sampling itself. A poor sampling technique may introduce systematic errors into the ultimate test result. Systematic sampling errors may sometimes be very difficult to detect. When wood chips are sampled, two common causes of systematic errors are:

(a) The spot samples are taken in positions where material with certain properties is over-represented, for example from only one side of a conveyer belt or from an area exposed to heat, wind or precipitation.

(b) The spot sample is taken so that it is not representative of the material at the intended sampling point, for example by using a sampling device which is so small that large chips are excluded.

To avoid systematic errors it is extremely important that the dimensions of the sampling device and the size of the spot sample be chosen with due regard to the particle size distribution of the lot. In some cases the systematic errors can be eliminated by changing the position of sampling or the construction of the sampling device, or by changing the sampling strategy.

Normally it is not possible to improve the accuracy or the precision merely by increasing the size of the spot sample. The precision is, however, improved by increasing the number of spot samples, although this does not eliminate inherent systematic errors in the sampling procedure.

Random sampling errors are primarily reduced by taking so many spot samples that the mean result, with a specified probability, deviates from the ‘true’ mean by less than a given quantity.

When chips are sampled, it is an advantage if all the lot is available for sampling. This is the case when the chips are transported on a conveyer belt. If the belt is stopped and all the chips on a sufficiently long section of the belt are taken, the systematic errors described under (a) and (b) above are greatly reduced.

Often it is not permissible to stop the belt as this interferes with mill operation. In such a case the end of the belt, where there is a free fall of chips, may be used as the sampling point. By moving a suitable container across the stream of chips, a spot sample representative of the whole width of the belt may be collected. One should cover the whole cross section of the stream of falling chips.

Samples of acceptable quality may also be obtained from stationary material (car loads, heaps etc.) provided that an appropriate technique is applied. Stationary material is normally not uniform because of fractionation that occurs, for example when loading a car or building a heap. It is important that the sampling points be selected so that all parts of the lot are covered. Normally a larger number of spot samples are required than in sampling from moving material.

Sampling car loads by taking spot samples only from the top layer for example, does not give a representative gross sample. Samples obtained from holes dug from the top of a car load also tend to be non-representative because large chips have a greater tendency than small ones to slide down from the sides of the hole.

If the spot samples are collected manually, the sampler must have detailed instructions. The sampling time, the duration of the sampling period, the number of spot samples, the exact location of sampling points, the size of the samples and other details should be included in these instructions and not left to the sampler's discretion.

Automatic sampling devices should be carefully checked before installation so that no systematic sampling errors are introduced.

Similar standards are SCAN-CM 41:94.

NOTES

Sampling of wood chips for testing

1 Scope

This standard provides guidelines and recommendations for the sampling of wood chips intended for the production of wood pulps. The procedure covers both the selection of the gross sample from a lot or shipment, mixing the sample, and the preparation of individual samples for laboratory testing from the gross sample.

2 Definitions

For the purpose of this standard the definitions below apply:

2.1 Lot

A definite quantity of chips.

2.2 Sample

A small part taken from a lot and intended to provide information on the lot and possibly to serve as a basis for a decision on the lot or on the process which produced it.

2.3 Spot sample

A quantity of material taken at one time from a larger body of material.

2.4 Gross sample

An aggregation of spot samples.

3 Principle

A gross sample is taken from a lot by a procedure designed to ensure that it is representative of the lot. The gross sample is then mixed and divided by mechanical devices or hand methods until a laboratory sample of the size required for testing is obtained.

4 Apparatus

4.1 For obtaining a gross sample

4.1.1 For sampling a falling steam of chips: Bucket, having a volume of 5 to 10 litres. It must be possible to pass the bucket through the whole of the falling steam.

4.1.2 For sampling from a stopped conveyer belt: shovel and brush.

4.1.3 Sacks, about 100 litres in volume, of strong plastic for storing the gross samples.

4.2 For mixing and reducing gross samples any of the following instruments may be used:

4.2.1 Mixing drum, as shown in Figure 1, for splitting a sample of chips, usually into two approximately equal portions.

4.2.2 Riffle sample divider, as shown in Figure 2 (sometimes with motor-driven shaker) for splitting a sample of chips, usually into two approximately equal portions.

4.2.3 Straight-edge shovel, scoop or trowel and a hard, clean surface, for coning and quartering a pile of chips.