AUSTRALIAN STANDARD **Appita P11s—78**

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KLASON LIGNIN IN WOOD AND PULP

Lignin is the aromatic amorphous material found in the cell wall and middle lamella of a wood fibre (References 7.1 and 7.2). Its removal is the main objective of chemical pulping and bleaching processes.

For the purpose of this Standard, Klason lignin is defined as those components of wood or pulp which are insoluble after treatment with 72 per cent *m*/*m* sulphuric acid followed by boiling in 3 per cent sulphuric acid. This Standard describes a method for determination of Klason lignin. The lignin content should not be less than 1 per cent to provide a sufficient amount of lignin, about 20 mg, for accurate weighing. It is not applicable to bleached pulps containing small amounts of lignin.

Most woods contain some lignin which is rendered soluble by the above treatment and which is not determined by this Standard. In softwoods and sulphate pulps this soluble lignin content is small, about 0.2 to 0.5 per cent, but in hardwoods it can amount to 5 per cent. In semi-bleached pulps about one-half of the total lignin content could be acid soluble. The filtrate obtained during performance of this test may be used for determination of acid-soluble lignin (Note 6.1.)

Hardwoods contain appreciable quantities of alkali soluble lignin so that hardwood which has had any alkali treatment, may give a lower result than would be obtained on the untreated wood. Some eucalypt woods contain polyphenolic substances which are included in the acid insoluble lignin if not removed prior to the test. (Reference 7.3)

1 APPARATUS

1.1 Filtration apparatus consisting of a 2-litre filtering flask, a suitable adaptor, a filter crucible and a siphon tube fitted as shown in Figure 1. Any acid washed filter medium may be used provided a clear filtrate is obtained. The most common mediums are sintered glass discs of either fine or medium porosity.

1.2 Constant temperature water bath controlled to 20 ±1°C.

1.3 Erlenmeyer flask, one litre capacity with a mark at 575 ml for wood samples, or 2-litre capacity with a mark at 1540 ml for pulp samples (Note 6.2).

1.4 Reflux condenser which can be attached to the flask.

1.5 Drying oven, with forced ventilation, controlled at 105 ±2°C.

1.6 Wiley mill fitted with a 1 mm screen, or a high speed disintegrator such as a Waring Blender or Semak Vitamizer.

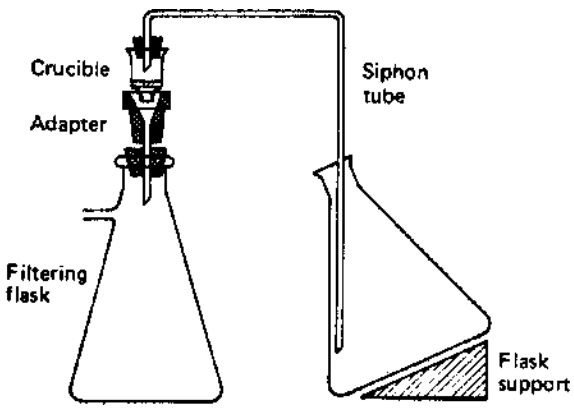

Figure 1

2. REAGENTS

2.1 Sulphuric acid, 72.0 ±0.3 per cent *m/m* prepared as follows:

Carefully pour 665 ml of concentrated sulphuric acid (density 1.84) into 300 ml of water, cool to 10-20°C and make up to 1 litre.

Determine the molality by titration against standard alkali and adjust to 72.0 ±0.3 per cent.