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REMOVAL OF LATENCY

Some mechanical pulps, when made into laboratory handsheets and tested for physical properties, give different results if the disintegration of the pulp is done hot instead of cold. The phenomenon which causes this behaviour is known as latency. In testing such pulps it is usually necessary to remove this latency by hot disintegration prior to making handsheets, in order that the properties of such pulps be comparable with those of pulps which do not exhibit latency.

1. APPARATUS

1.1 Disintegrator, conforming to the requirements prescribed in AS 1301.214.

1.2 Means of heating the disintegrator, sufficient

to maintain the temperature of the contents at $90 \pm 5^\circ\text{C}$ during the whole of the disintegration. Disintegrators with built-in heating are available commercially.

2. 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 (Note 5.1). Protect dry pulp

samples from dust by wrapping or by use of dustproof containers. Store slush pulp and moist pulp samples in airtight containers.

3. PROCEDURE

3.1 Preparation of test specimen. Thoroughly mix moist crumbed pulp to equalize the moisture distribution. Tear a sub-sample of the moist pulp into small pieces and mix thoroughly. Tear dry lap pulp into pieces which are as large as the need to obtain a representative sub-sample will allow, and no smaller than is necessary to achieve that objective. Excessive tearing of pulp laps while dry can damage the fibres sufficiently to affect the test results. Do not cut the pulp and avoid the inclusion of cut edges in the sample.

Determine the moisture content of the pulp by a suitable method (Note 5.2) and weigh out a quantity of pulp equivalent to 30.0 ± 0.5 g of o.d. fibre.

Moisten dry lap pulp with distilled water (or the equivalent) and tear into small pieces. Dry pulp needs to be thoroughly wetted with distilled water (or the equivalent) before disintegration. Do this by soaking the weighed charge of pulp in the water (Reference 6.1) at room temperature for sufficient time to ensure that no lumps of pulp remain after disintegration. The soaking time must not be less than 4 h or greater than 24 h. The initial wetting of the pulp may be accelerated by placing the pulp and water in a pressure flask and applying and

releasing vacuum three or four times. If necessary tear lap pulp into smaller pieces after soaking.

3.2 Heat the container of the disintegrator to approximately 85°C . If necessary, preheat the sample in a suitable vessel in a water bath or similar device and transfer to the container of the disintegrator. Add hot ($90 \pm 5^\circ\text{C}$) distilled water (or the equivalent) to give a stock concentration of 20 ± 2 g/L, run the motor for a few seconds and check that the temperature of the stock is $90 \pm 5^\circ\text{C}$.

3.3 Set the revolution counter to zero, start the motor and disintegrate for 1200 counter revolutions (30 000 revolutions of the propeller), maintaining the temperature of the stock at $90 \pm 5^\circ\text{C}$ for the entire disintegration period.

3.4 Transfer the stock without delay to a vessel containing cold distilled water (or the equivalent). The volume of the cold water should be selected so that the stock concentration of the mixture, including rinsings, is less than 5 g/L and, if freeness testing is required, not less than 3 g/L (Note 5.3). Mix well and cool to about 20°C .

3.5 Complete freeness tests and commence sheetmaking within 30 min of the dilution step (3.4).