International Standard

ISO 5267/1

Pulps — Determination of drainability — Part 1 : Schopper-Riegler method

Pâtes — Détermination de l'égouttabilité — Partie 1 : Méthode Schopper-Riegler

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5267/1 was developed by Technical Committee ISO/TC 6, *Paper, board and pulps*, and was circulated to the member bodies in February 1978.

It has been approved by the member bodies of the following countries :

Austria	India	South Africa, Rep. of
Belgium	Iran	Spain
Brazil	Ireland	Sweden
Canada	Italy	Switzerland
Chile	Kenya	Turkey
Egypt, Arab Rep. of	Mexico	United Kingdom
Finland	Netherlands	USA
France	Norway	USSR
Germany, F. R.	Poland	
Hungary	Romania	

The member body of the following country expressed disapproval of the document on technical grounds :

Bulgaria

Pulps — Determination of drainability — Part 1 : Schopper-Riegler method

1 Scope

This International Standard specifies a method for determination of the drainability of a pulp suspension in water in terms of the Schopper-Riegler (SR) number.

The Schopper-Riegler test is designed to provide a measure of the rate at which a dilute suspension of pulp may be dewatered. It has been shown that the drainability is related to the surface conditions and swelling of the fibres, and constitutes a useful index of the amount of mechanical treatment to which the pulp has been subjected.

Results of this test do not necessarily correlate with the drainage behaviour of a pulp material on a commercial paper machine.

A method for the determination of drainability in terms of the "Canadian Standard" freeness number is specified in ISO 5267/2.[1]

2 Field of application

In principle, this method is applicable to all kinds of pulp in aqueous suspension.

NOTE — However, in practice, the Schopper-Riegler test provides acceptable results only if a sufficiently dense mat of fibres is formed on the wire screen. For this reason, the test is not recommended for some extremely short-fibred pulps, such as those from well-beaten hardwoods, as most of the fibres will pass through the wire screen, resulting in anomalous reduction in the SR number. The most reliable results are obtained within the range of 10 to 90 SR number.

3 Reference

ISO 4119, Pulps — Determination of stock concentration.

4 Principle

Draining, through a fibre mat formed during the test on a wire screen, of a given volume of pulp in aqueous suspension into a funnel provided with a bottom and a side orifice. Collection of the discharge from the side orifice in a measuring cylinder, graduated in Schopper-Riegler numbers.

5 Definition

For the purposes of this International Standard, the following definition applies :

Schopper-Riegler number scale : A scale on which a discharge of 1 000 ml corresponds to a SR number of zero and zero discharge to a SR number of 100.

6 Apparatus

Ordinary laboratory apparatus and

6.1 Schopper-Riegler apparatus, as described in annex A.

Instructions for maintenance of the apparatus are given in annex B.

7 Preparation of sample

Take a sample of aqueous suspension of disintegrated pulp. If the concentration is not known exactly, dilute the suspension to approximate 0,22 % (m/m) with distilled or deionized water (see note 3), and determine the stock concentration in accordance with ISO 4119. Then dilute the suspension to a stock concentration of 0,2 ± 0,002 % (m/m) and adjust the temperature to 20,0 ± 0,5 °C (see note 4). Throughout the preparation of the sample, take care to avoid the formation of air bubbles in the suspension.

NOTES

1 With time, an aqueous pulp suspension, withdrawn from the stock preparation system or laboratory pulp evaluation equipment, can undergo a change in Schopper-Riegler number. To avoid the effect of this reversion phenomenon, pulp suspensions subjected to testing more than 30 min after sampling should first be treated in the disintegration apparatus for 6 000 revolutions of the propellor, at or near the stock concentration specified for the SR test.

2 The test result is sensitive to the quantity of pulp fines, or "crill", in the suspension. Thickened pulp samples may lose some of this fibre fraction. To avoid such losses during the course of thickening, the filtrate should be recirculated through the pulp pad until the filtrate is clear, and the pulp redispersed by disintegrating as described in note 1. This procedure should be used to concentrate dilute pulp suspension to the Part II stock concentration required for the Schopper-Riegler test.

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1) At present at the stage of draft.