A Little Known Variety of Speciality Paper—Standard Laboratory Blotters

GUHA, S. R. D.*, MATHUR, G. M.**

INTRODUCTION

Very recently work was under taken at the F.R.I to produce standard blotters required for pulps evaluation equipment in laboratory. For evaluation of pulps, standard hand sheets are made on standard pulp evaluation equipment. Blotters used to remove water from the sheet play an important part. The properties of blotter must be controlled to prevent troubles like cockling or creasing of the sheet. Besides this, if the way in which the water is removed from the handsheets is not consistent, the strength properties of the sheet will be affected. Absorption plays greater part in determining the moisture content and this in term affects the strength of the standard sheets. Care has to be taken that during manufacture of these blotters substance and absorbency remains within the prescribed given limits.

SPECIFICATIONS

Specification for standard blotters has been given by ISO, SCAN, TAPPI and B.P.B.I.R.A., they are as given in Table No. 1.

TABLE–I

	B.P.B.I.R.A.	SCAN	I.S.O
1. Substance, g.s.m.	245±20	250±25	250±20
2. Bulk, Cm^3/g	195±0.20	—	—
3. Klemm absorbency, m.m.	70±20	70±20	70±20
4. Water uptake, g/m^2	450±50	500±100	450±5
5. Wet expension % in cross direction	2.6	3.0	3.0
Ratio between cross & machine directions	10±3	—	—

Note:

B.P.B.I.R.A.—British Paper and Board Industry Research Association, Paper Technology, Vol. 17, No. 5, Oct. 1966, p 430

SCAN –M–5:76

I.S.O. –I.S.O. /DP 5269.

*Director of Forest Product Research,** Research Officer, Cellulose & Paper Branch, Forest Research Institute, Dehra Dun.

THE KLEMN ABSORBENCY IS DETERMINED AS FOLLOWS

From a conditioned specimen, cut test piece, 15 mm. wide, in the machine and cross direction and keep them in the conditioning atmosphere throughout the test. Mark the test pieces 10 mm. from one end and fix them to an appratus which permits the vertically suspended test pieces to be lowered into water to a depth of 10±1 mm. Lower the test pieces until the mark coincides with water level and start timing. After 10 min read the capillary rise.

THE WATER UPTAKE IS DETERMINED AS FOLLOWS

Weigh a conditioned test piece, 40 mm x 40 mm, and immerse it in deionized or distilled water at 20°C for 2 sec. After removal drain the test piece from one corner for 30 sec. and determine the difference in mass before and after immersion. Calculate the water uptake as the mass of water absorbed in grams per square meter of the conditioned blotter.

PILOT PLANT PRODUCTION

Bleached second cut cotton linter pulp obtained from M/s. Travancore Rayons Ltd., Madras, was used for the production of standard blotters. The pulp was in fluffed condition packed in bales.

About 400 kg. of pulp was loaded in a Banning beater fitted with phosphobronze tackles on role and bed plate and allowed to swell overnight after some initial disintegration. The pulp was beaten in a manner that the pulp does not become to wet but still the specified Klemm Value could be obtained. It took 8–10 hr. to reach a desirable freeness. The pulp was not sized and no other chemical was added.

Blotting paper was made on four-drainer Machine. During the machine run, minimum vacuum was applied on the five vacuum boxes. The top roll of the two presses were lowered only to that extent so that the felts keep on Moving but no pressure was applied on sheet. The calender was by passed. The details of stock preparation and papermaking are given below:

1. Initial freeness of the pulp, C.S.F.(Ml). =610
2. Consistency in beater during beating,% =4.0
3. Final freeness of pulp, C.S.F.,(ml). =260
4. Speed of Paper machine, m.p.m. =30

The paper machine run smoothly. Blotting paper so produced was cut into 20.3 cm x 20.3 cm. m.m. size blotters and sent to laboratory for actual operational test on British sheet making machine. The blotting paper was also tested for other properties. The results of the test are given below:

1. Substance, g.s.m.	— 250
2. Bulk, Cm^3/g	— 2.01
3. Klemn absorbency, m.m.	— 70
4. Water uptake, g/m^2	— 430

The blotters produced as above were used in laboratory on British Standard Sheet Making equipment were found satisfactory. Similar reports have been received from U.N.D.P. Project, F.R.I., Dehra Dun, I.P.T., Saharanpur, Star Paper Mills, Saharanpur and Straw Products Ltd., Rajagada.

This shows that standard blotter can be produced from indigenous second cut cotton linter bleached pulp.