HIGH BURST-HIGH STRETCH PAPER FROM SANN HEMP AND LINSEED FLAX

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ABSTRACT

This note describes the investigations which led to the result that Sann hemp fibre and linseed flax fibre under proper conditions give paper of much higher stretch than coconut fibre.

Introduction

Guha [1] has reported results of an investigation for producing high stretch paper from coconut coir fibre. Investigations were carried out in this laboratory for the production of a similar paper from Sann Hemp (*Junea* crofaleria) which has been used as a raw material for the production of paper in this country from the earliest times and Linseed Flax (*Linum usitatissimum*), supplies of which are plentifully available in India.

Experimental

It was somewhat easier to beat the Linseed Flax pulp to the required freeness than the Sann Hemp pulp. Pulping condition and beater furnish are given in Table I. Guha's results are also given for comparison.

TABLE I

Fibre	Pulping Condition					Beater Furnish		Remarks
	Caustic Soda used%	Temp. of cooking °C	Cooking time hrs.	Cooking pressure Kg/Sq cm.	Unbleached yield	Beater additives parts by wt.	Pulp consistency %	Freeness CC's (CSF)
Linseed Flax (1) (Pressure digestion)	15	140	5	3·16	58	Pulp—100 Rosin—2·5 CMC Majol 90 LV 5 Alum 6·3	2	83
Linseed Flax (2) Open Digestion	15	98	5	..	60	Do.	2	15
Sann Hemp	15	145	5	3·16	65·6	Pulp—100 Rosin size—2·5 Sodium silicate—5 Alum—6	2	100
Coconut Coir fibre (Guha)	20 of 3 NaOH: 1 Na_2S	170	4	..	44·6	..	..	300

The strength properties of 105 g/per sq. m. substance experimental sheets are given in Table II. Test results for an imported paper of the same substance and having similar properties and those of Guha's Coconut Coir fibre paper (60g/per sq. m.) have also been included for comparison.

TABLE II

Serial No.	Pulp Used	Breaking length metres	Tear factor	Folding Endurance double fold	Burst factor	Stretch %
1	Sann Hemp	3,500	353	2,500	51	12
2	Linseed Flax (1) (Pressure digestion).	2,700	250	..	30·6	5
3	Linseed Flax (2) Open digestion.	7,000	110	..	36	13
4	*Imported paper ..	9,600 (Machine wise) 3,300 (Cross wise)	151	2,500	44·6	4·7 (Machine wise) 10·8 (Cross wise)
5	Coconut Coir fibre (By Guha).	4,350	107	302	36·4	9·0

Conclusion

It will be seen from the above results that Sann hemp fibre and Linseed Flax fibre under proper conditions give paper of much higher stretch, than coconut fibre reported by Guha. The results of strength determination are not strictly comparable as the method of pulping and beater furnish are different (see table I). The results obtained with Sann hemp pulp and Linseed Flax pulp are comparable with those obtained with imported paper. The low breaking length is expected and is due to high degree of beating as shown by low freeness (C.S.F.). But this has been considerably off set by the high tear factor for practical purposes in both cases.

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Reference

1. Guha SRD, *Current Science*, **29**, 93, 1960.

*Composition and method of manufacture are not known. The material received in rolls ready for use.