

TECHNICAL NOTES

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

MADISON, WISCONSIN

No. 97

TEARING STRENGTH OF PAPER

That there is no relation between the actual tearing strength or toughness of paper and the values obtained with the commonly-used paper testers is indicated by the results of recent experiments at the Forest Products Laboratory. The method of test, employing a Schopper tensile strength tester, demonstrated that the toughness of paper can be numerically measured, but that the pop test, breaking length, percentage stretch, and number of folds give very little information about this property.

The following table gives the tearing strength of various papers in grams as determined by the laboratory method and the values obtained in the commonly-used tests:

Kind of paper	Wgt. of ream 24x36	Pop test	Break- ing length	Stretch	Folds	Tearing strength
	Lbs.	Lbs. per sq. in.	Meters	Per cent	No.	Grams
News sheet	28	8	2915	1.0	1	17
Steamed groundwood (brittle)	34	14	4584	1.5	5	21
Tough kraft (soft feel)	41	44	6670	3.6	3020	80
Hard kraft (tinny feel)	52	38	5320	5.0	556	73
Litho (bleached sulphate)	44	25	4860	2.9	248	83
Bond (all rag)	38	37	5363	5.31	798	88
Ledger (all rag)	87	110	6335	6.1	2436	167