

TABLE 7.—COMPARISON OF THE "INTERNATIONAL" GRINDER USED IN THE MILL TESTS AND THE EXPERIMENTAL-SIZE GRINDER USED AT THE FOREST PRODUCTS LABORATORY.

Details.	International Grinder.	Laboratory Grinder.	Ratio Labora- tory Grinder to International Grinder.
1. Cylinder, diameter (in.)	16	7.25	1 to 2.2
2. Cylinder, area (sq. in.)	201	41.25	1 to 4.9
3. Pocket, width (in.)	15	8	1 to 1.9
4. Length of wood ground (in.)	24	9	1 to 2.7
5. Area of wood in contact with stone in one pocket (3 × 4) (sq. in.)	360	72	1 to 5
6. Ratio of cylinder area to area of wood in contact with stone in one pocket (5 ÷ 2) ..	1 to 1.79	1 to 1.74	1 to 1
7. Number of pockets	3	2	1 to 1.5
8. Face of stone (in.)	24	12	1 to 2
9. Diameter of stone (in.)	57	25	1 to 2.3
10. Total area of wood in contact with stone (7 × 5 ÷ 144) (sq. ft.)	7.5	0.5*	1 to 15
11. Speed of stone (r.p.m.)	180†	460	1 to 0.39
12. Peripheral speed (ft./m.)	2,685	3,015	1 to 0.89
13. Effective grinding area per minute (12 × 10)‡ (sq. ft.)	20,170	1,508	1 to 13.4

* Only one pocket was used at a time on the laboratory grinder when grinding tawa.

† Speed used when grinding tawa.

‡ If 1 square foot be taken as the unit of area, the area of stone passing a unit area of wood per minute will be (the peripheral speed × 1) sq. ft. The "effective" grinding-area per minute will be therefore: Peripheral speed × total area of wood in contact with the stone.

TABLE 8.—GRINDING OF TAWA AT GREAT WESTERN PAPER CO. MILL, LADYSMITH, WISCONSIN: LOG OF GRINDER-RUNS.

Date.	Shift.	Hour.	Stone Surface.*†	Duration of Grinding.	Wood.		Production.				
					Racks filled.‡	Wood ground.	Pulp Laps.			Pulp (dry).	
							Wet Weight.	Moisture Content.	Dry Weight.	Per Cord.	Per 24 Hours.
GRINDER-RUN No. 1.											
1928.				Hours.		Cords.	lb.	Per Cent.	lb.	lb.	Tons.
Feb. 7 ..	1	9.30 a.m.	A, B, C								
		2.00 p.m.	C								
		3.00	..	5.5	5	..	2,400	73.5	636		
	2	6.30	B, C								
		10.30	C								
		11.00	..	8	3	..	4,660	73.5	1,235		
Feb. 8 ..	3	2.30 a.m.	B, C								
		6.30	C								
		7.00	..	8	3	..	4,705	73.5	1,247		
	1	10.30	..	3.5	..	..	2,985	72.6	818		
				25	11	2.75	14,750	..	3,938	1,432	1.89
GRINDER-RUN No. 2.											
Feb. 9 ..	1	1.15 p.m.	B, C	2	3						
	2	4.00	B, C								
		7.00	C								
		10.00	B, C								
		11.00	..	8	4	..	4,410	72.0	1,235		
Feb. 10 ..	3	1.00 a.m.	C								
		4.00	B, C								
		7.00	C	8	3	..	5,055	72.0	1,415		
	1	10.00	B, D								
		2.00 p.m.	D								
		3.00	..	8	3	..	5,305	74.0	1,380		
	2	5.00	D								
		7.30	..	4.5	..	..	4,540	74.0	1,180		
				30.5	13	3.25	19,310	..	5,210	1,600	2.05

* Types of burrs used were as follows: A, smooth roll used for removing old surface; B, four-point (four teeth per inch) straight-cut burr; C, 14-point diamond-cut burr; D, 12-point diamond-cut burr. All burrs were new. They were used in the order indicated.

† Average pressure in cylinder, 30 lb. For other conditions see Table 7.

‡ One rack equals $\frac{1}{4}$ cord. These were the number of racks filled on each shift, and not the number of racks ground.