

TECHNICAL NOTES

A13005-F10

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

MADISON, WISCONSIN

No. F-10

RESISTANCE OF ANIMAL GLUES TO MOIST AIR

That there is a close relation between the viscosity, and therefore the grade of animal glues and their moisture resistance is strongly indicated by recent tests made at the Forest Products Laboratory.

Test specimens were made of 2 pieces of 1/8" birch veneer glued together with the grain in opposite directions so as to give 1 square inch of glued joint surface. The specimens were suspended in a humidity chamber with a 1-pound weight hung on each, and the time required for failure of the glue joint was noted. The first two tests were made at 98 per cent humidity. In the third test, the specimens were kept at 90 per cent humidity for 120 hours, after which the humidity was raised to 98 per cent. No failure occurred at 90 per cent. The temperature used in each test was about 83° F.

Resistance of Glues of Different Viscosity to Moist Air

Glue Used			Test No. 1		Test No. 2		Test No. 3	
No.	Rel- ative viscos- ity (Engler)	Jelly strength by Smith tester	No. spec- imens used	Av. no. hours before fail- ure	No. spec- imens used	Av. no. hours before fail- ure	No. spec- imens used	Av. no. hours before fail- ure ^b
13	1.62	222	2	10-1/2	4	12	4	24
7 ^a	-	-	-	-	4	12	4	24
36	1.70	219	2	12-1/7	4	14-1/2	4	24
37	1.92	256	2	13	-	-	4	44
34	2.00	267	2	17	4	26-1/2	4	48
35	2.90	315	2	42	4	36	-	-
19	4.98	356	4	59-1/2	-	-	-	-
21	4.14	338	-	-	4	48	4	66
9	5.48	416	-	-	4	66-1/2	4	198

^aA vegetable glue.

^bAfter raising humidity to 98 per cent.

The results indicate that the moisture resistance of animal glues is proportional to the viscosity, jelly strength, and grade.