

# 外來種木材의 解剖學的 및 物理的 性質에 對한 研究

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## A Study on Anatomical and Physical Properties of Imported Woods

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### Resume

1. The physical and anatomical properties investigated in this study are the ones, which may give more effect on absorption of preservatives, such as variation of annual ring, specific gravity, shrinkage, E.M.C. of desorption and adsorption at 70 percent relative humidity condition, general and minute properties of wood.
2. On this study, the positive effects of wood structure, in particular, the appearances of tyloses in vessel element upon the absorption of creosote were observed.
3. Thirteen percent sodium chloride solution treatment and boiling hot water treatment have shown poor results to improve the preservative absorption characteristics of tested species however, some slight difference between treated and control could be seen. (see Tables 6 and 7).

Table. 6. Physical properties of imported wood

Species	Specimen	Untreated case		Treated case	
		Absorption (g)	Percent (%)	Absorption(g)	Percent (%)
Red oak	1	1.800	32.9	1.920	34.5
	2	1.010	17.7	0.910	16.3
	3	1.490	27.8	1.540	27.4
	4	1.670	30.6	1.870	32.5
	5	1.210	21.5	1.130	18.8
	6	1.050	18.7	1.300	22.4
	7	1.490	26.1	1.480	28.7
	8	1.260	19.4	0.620	9.5
	A	1.390	24.3	1.340	23.1
White oak	1	0.590	9.7	0.700	11.2
	2	-0.040	-0.6	-0.070	-1.1
	3	0.010	0.1	0.030	0.4

	4	0.070	1.0	-0.050	-0.8
	5	-0.010	-0.2	0.010	0.2
	6	0.010	0.1	0.020	0.3
	7	-0.100	-1.5	-0.030	0.5
	8	0.160	2.8	0.150	2.4
	9	-0.030	-0.4	0.040	-0.6
	A	0.080	1.2	0.080	1.2
Hard elm	1	3.120	64.5	2.840	50.9
	2	3.030	62.8	3.110	59.4
	3	2.650	55.7	4.390	97.4
	4	3.900	93.3	4.320	97.9
	5	4.460	106.0	4.290	96.4
	6	3.300	67.3	2.750	51.7
	7	3.140	65.4	3.290	65.1
	8	3.990	92.7	4.340	95.1
	A	3.450	75.1	3.665	75.0

Absorption value after treated into 13% sodium chloride solution

Table 7. Physical properties of imported wood

Species	Item studied	Untreated control	Treated into boiling hot water				
			1 Hrs.	3 Hrs.	5 Hrs.	7 Hrs.	Average.
Red oak	Sp. Gr.	0.67	0.69	0.66	0.68	0.67	0.67
	Absorption (g)	6.305	5.730	5.960	6.070	5.460	5.870
	percent	19.5	17.4	18.0	18.0	16.5	17.7
Hickory	Sp. Gr.	0.27	0.73	0.74	0.67	0.67	0.70
	Absorption (g)	8.505	9.900	7.800	9.940	9.340	9.030
	percent	25.4	29.1	22.2	31.6	28.3	26.8
White oak	Sp. Gr.	0.73	0.69	0.75	0.72	0.78	0.73
	Absorption (g)	2.150	1.920	2.600	3.190	2.585	2.585
	percent	5.9	5.8	7.3	8.8	6.3	7.2
Hard elm	Sp. Gr.	0.57	0.57	0.56	0.60	0.56	0.57
	Absorption (g)	14.250	13.120	13.240	13.080	16.110	13.900
	percent	52.1	47.7	48.6	48.7	58.3	49.6

Absorption after treated into boiling hot water ■