



All Nydree Engineered Flooring Products Test Data Modified Rockwell Hardness & Janka Hardness

The Rockwell Hardness Test (ASTM D-785) is a hardness test developed primarily for metals, but by using a modified penetrator, relative hardness results can be obtained on wood/acrylic composites. For years Nydree Flooring has used this 'Modified' Rockwell Hardness test to compare the hardness of many acrylic infused species.

ASTM D-143 (Janka Section) was performed on infused, 2" x 2" x 6" solid pieces of all the wood species Nydree uses and the Janka hardness results were obtained. (The Janka hardness is a measure of the lbs./in² (psi) required to embed a 0.444 inch steel ball half its diameter in the wood surface.)

Using the Modified Rockwell Hardness test (ASTM D-785), that uses a modified indenter, Nydree obtains Rockwell hardness results on our Engineered Wood Products that utilize the same infused species as used in the above ASTM D-143 Janka tests.

The results from these two tests were compared and this is how the Modified Rockwell Hardness/Approximate Janka Hardness Table on the left was created.

The table on the right comes from Modified Rockwell Hardness data gathered on each species shown. The wide Janka range is due to the varying wood density within a wood species. This varying wood density leads to various degrees of acrylic loading and thus varying wood hardness.

Modified Rockwell Hardness	Approx. Janka Hardness
-20	400
-16	500
-12	600
-7	700
-3	800
1	900
5	1000
9	1100
13	1200
17	1300
21	1400
25	1500
32	2000
39	2500
45	3000
52	3500
59	4000
66	4500
73	5000
80	5500
86	6000
93	6500
100	7000
107	7500
114	8000

Rank*	Wood Species	Average Non-Infused Janka (Raw)	Infused Modified Rockwell Range	Infused Corresponding Janka Range	% of Wood Surface in this Range†
1	Maple	1450	55 to 115	3714 to 8000	100%
2	Ash	1320	55 to 105 25 to 54	3714 to 7357 1500 to 3643	85% 15%
3	Northern Red Oak	1290	36 to 70 5 to 35	2286 to 4786 1000 to 2214	85% 15%
4	R&Q & Plainsawn White Oak	1360	71 to 90 36 to 70 15 to 35	4857 to 6286 2286 to 4786 1250 to 2214	25% 50% 25%
	Reclaimed Oak (Red & White Mix)	1290 (Red) 1360 (White)	36 to 80 20 to 35	2286 to 5500 1375 to 2214	90% 10%
5	Cherry	950	36 to 90 5 to 35	2286 to 6286 1000 to 2214	60% 40%
5	Walnut	1010	36 to 90 5 to 35	2286 to 6286 1000 to 2214	60% 40%

*The acrylic infusion process increases the hardness of all of the species treated in the chart above. However, the species rank is in order of overall decreasing hardness.

†There could be a small percentage of the flooring that is out of the reported hardness range.

Note: All Rockwell measurements are performed across the grain and on finished plank. For porous woods such as Ash, Oak, and Walnut, hardness measurements are taken on the solid area between the open pores.