EQUILIBRIUM MOISTURE CONTENT

Application Note **22**

For any given combination of temperature and relative humidity conditions, there is an equilibrium moisture content for a piece of wood.

For example if the temperature is 75 degrees F and steady, and the relative humidity is 51% and steady, then the moisture content of a piece of wood will reach 9.3% and remain there. By remaining at a set moisture content, the wood is said to be at "equilibrium" with the environment. If a piece of wood is introduced into this temperature and humidity environment, and its starting moisture content is higher than 9.3%, then its moisture content will decrease over time, and approach the equilibrium value of 9.3%.

See the table below for an estimate of wood equilibrium moisture content at various atmospheric temperatures and relative humidities.

Table 1. Equilibrium Moisture Content of Wood (in %)

Temperature (in degrees F) \ Relative Humidity (%)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	1.3	2.4	3.5	4.4	5.3	6.3	7.2	8.0	8.8	9.7	10.5	11.4	12.5	13.7	15.1	16.7	18.3	20.4	21.6	22.0
35	1.3	2.6	3.7	4.7	5.5	6.3	7.1	7.9	8.8	9.6	10.5	11.4	12.3	13.5	14.9	16.5	18.3	20.4	21.6	22.0
40	1.2	2.4	3.5	4.6	5.5	6.4	7.1	7.9	8.6	9.5	10.4	11.2	12.3	13.4	14.8	16.6	18.3	20.4	21.6	22.0
45	1.3	2.4	3.5	4.4	5.3	6.3	7.2	7.9	8.6	9.4	10.2	11.1	12.2	13.3	14.7	16.4	18.3	20.4	21.6	22.0
50	1.5	2.8	3.7	4.6	5.4	6.3	7.2	7.9	8.7	9.4	10.2	11.1	12.1	13.3	14.7	16.3	18.6	20.4	21.6	22.0
55	1.3	2.7	3.8	4.7	5.5	6.3	7.0	7.8	8.6	9.5	10.3	11.0	12.2	13.4	14.8	16.3	18.2	20.4	21.6	22.0
60	1.3	2.5	3.7	4.7	5.5	6.3	7.0	7.8	8.6	9.4	10.2	11.1	12.0	13.2	14.6	16.3	18.2	20.4	21.6	22.0
65	1.2	2.6	3.5	4.5	5.4	6.2	7.0	7.8	8.5	9.3	10.2	11.0	11.9	13.3	14.4	16.6	18.2	20.4	21.6	22.0
70	1.2	2.5	3.7	4.5	5.5	6.2	7.0	7.7	8.4	9.2	10.1	11.0	11.8	13.1	14.4	16.1	17.9	20.4	21.6	22.0
75	1.2	2.3	3.5	4.5	5.2	6.0	6.9	7.6	8.4	9.2	10.0	10.9	11.8	12.9	14.3	16.0	18.1	20.4	21.6	22.0
80	1.1	2.4	3.5	4.5	5.3	6.0	6.8	7.5	8.3	9.1	9.8	10.7	11.7	12.8	14.3	15.9	17.9	20.4	21.6	22.0
85	1.1	2.0	3.4	4.3	5.2	6.0	6.6	7.5	8.2	9.0	9.8	10.7	11.6	12.5	14.2	15.7	17.6	20.0	21.6	22.0
90	1.3	2.3	3.3	4.3	5.1	5.9	6.7	7.4	8.1	9.0	9.7	10.5	11.4	12.5	14.0	15.5	17.3	19.7	21.6	22.0
95	1.3	2.3	3.2	4.1	5.0	5.7	6.5	7.2	8.1	8.8	9.5	10.5	11.4	12.4	13.9	15.3	17.4	19.8	21.6	22.0
100	1.0	2.4	3.4	4.1	5.1	5.7	6.4	7.2	8.0	8.7	9.4	10.3	11.2	12.4	13.5	15.0	17.0	19.6	21.5	22.0
105	1.1	2.2	3.3	4.2	4.8	5.6	6.4	6.9	7.8	8.7	9.4	10.3	11.1	12.3	13.5	15.1	16.9	19.0	21.6	22.0
110	1.3	2.3	3.2	4.0	4.7	5.4	6.2	6.8	7.6	8.4	9.2	9.9	10.8	12.0	13.3	14.8	16.6	19.0	21.6	22.0
115	1.1	2.1	3.1	3.9	4.6	5.3	6.1	6.7	7.6	8.2	9.1	9.9	10.7	11.9	13.1	14.4	16.2	19.0	21.6	22.0
120	1.1	2.3	3.0	3.9	4.6	5.3	6.0	6.6	7.4	8.1	9.0	9.7	10.5	11.7	12.9	14.1	16.2	18.5	21.4	22.0
125	1.0	2.0	3.0	3.7	4.5	5.2	5.8	6.6	7.2	7.9	8.7	9.6	10.5	11.5	12.7	14.0	15.7	18.4	21.3	22.0
130	1.0	2.0	3.0	3.7	4.4	5.0	5.6	6.4	7.0	7.8	8.5	9.4	10.2	11.3	12.5	13.8	15.6	18.0	21.2	22.0
140	0.0	0.0	2.8	3.5	4.1	4.8	5.5	6.1	6.8	7.5	8.2	9.0	9.8	10.9	11.9	13.4	15.1	17.5	20.7	22.0
150	0.0	0.0	0.0	3.2	3.8	4.5	5.1	5.7	6.4	7.2	7.8	8.6	9.4	10.3	11.5	13.0	14.5	16.6	20.2	22.0
160	0.0	0.0	0.0	0.0	3.7	4.2	4.9	5.4	6.1	6.8	7.4	8.2	9.1	9.9	11.0	12.3	13.8	16.2	19.8	22.0
170	0.0	0.0	0.0	0.0	3.3	4.0	4.6	5.2	5.7	6.5	7.2	7.8	8.6	9.6	10.6	11.8	13.6	15.3	19.4	22.0
180	0.0	0.0	0.0	0.0	0.0	3.8	4.4	4.8	5.4	6.0	6.8	7.4	8.1	9.0	10.1	11.4	12.9	15.0	18.1	22.0
190	0.0	0.0	0.0	0.0	0.0	3.6	4.2	4.6	5.2	5.7	6.3	7.0	7.7	8.8	9.6	10.9	12.7	14.2	17.7	22.0
200	0.0	0.0	0.0	0.0	0.0	3.3	3.9	4.4	4.8	5.3	6.0	6.6	7.4	8.4	9.4	10.8	12.1	14.0	17.3	22.0
210	0.0	0.0	0.0	0.0	0.0	0.0	3.6	4.1	4.6	5.1	5.7	6.3	7.1	8.0	9.0	10.3	11.7	13.8	16.9	22.0

Temperature (°F)	Relative Humidity (%)																			
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	1.3	2.4	3.5	4.4	5.3	6.3	7.2	8.0	8.8	9.7	10.5	11.4	12.5	13.7	15.1	16.7	18.3	20.4	21.6	22.0
35	1.3	2.6	3.7	4.7	5.5	6.3	7.1	7.9	8.8	9.6	10.5	11.4	12.3	13.5	14.9	16.5	18.3	20.4	21.6	22.0
40	1.2	2.4	3.5	4.6	5.5	6.4	7.1	7.9	8.6	9.5	10.4	11.2	12.3	13.4	14.8	16.6	18.3	20.4	21.6	22.0
45	1.3	2.4	3.5	4.4	5.3	6.3	7.2	7.9	8.6	9.4	10.2	11.1	12.2	13.3	14.7	16.4	18.3	20.4	21.6	22.0
50	1.5	2.8	3.7	4.6	5.4	6.3	7.2	7.9	8.7	9.4	10.2	11.1	12.1	13.3	14.7	16.3	18.6	20.4	21.6	22.0
55	1.3	2.7	3.8	4.7	5.5	6.3	7.0	7.8	8.6	9.5	10.3	11.0	12.2	13.4	14.8	16.3	18.2	20.4	21.6	22.0
60	1.3	2.5	3.7	4.7	5.5	6.3	7.0	7.8	8.6	9.4	10.2	11.1	12.0	13.2	14.6	16.3	18.2	20.4	21.6	22.0
65	1.2	2.6	3.5	4.5	5.4	6.2	7.0	7.8	8.5	9.3	10.2	11.0	11.9	13.3	14.4	16.6	18.2	20.4	21.6	22.0
70	1.2	2.5	3.7	4.5	5.5	6.2	7.0	7.7	8.4	9.2	10.1	11.0	11.8	13.1	14.4	16.1	17.9	20.4	21.6	22.0
75	1.2	2.3	3.5	4.5	5.2	6.0	6.9	7.6	8.4	9.2	10.0	10.9	11.8	12.9	14.3	16.0	18.1	20.4	21.6	22.0
80	1.1	2.4	3.5	4.5	5.3	6.0	6.8	7.5	8.3	9.1	9.8	10.7	11.7	12.8	14.3	15.9	17.9	20.4	21.6	22.0
85	1.1	2.0	3.4	4.3	5.2	6.0	6.6	7.5	8.2	9.0	9.8	10.7	11.6	12.5	14.2	15.7	17.6	20.0	21.6	22.0
90	1.3	2.3	3.3	4.3	5.1	5.9	6.7	7.4	8.1	9.0	9.7	10.5	11.4	12.5	14.0	15.5	17.3	19.7	21.6	22.0
95	1.3	2.3	3.2	4.1	5.0	5.7	6.5	7.2	8.1	8.8	9.5	10.5	11.4	12.4	13.9	15.3	17.4	19.8	21.6	22.0
100	1.0	2.4	3.4	4.1	5.1	5.7	6.4	7.2	8.0	8.7	9.4	10.3	11.2	12.4	13.5	15.0	17.0	19.6	21.5	22.0
105	1.1	2.2	3.3	4.2	4.8	5.6	6.4	6.9	7.8	8.7	9.4	10.3	11.1	12.3	13.5	15.1	16.9	19.0	21.6	22.0
110	1.3	2.3	3.2	4.0	4.7	5.4	6.2	6.8	7.6	8.4	9.2	9.9	10.8	12.0	13.3	14.8	16.6	19.0	21.6	22.0
115	1.1	2.1	3.1	3.9	4.6	5.3	6.1	6.7	7.6	8.2	9.1	9.9	10.7	11.9	13.1	14.4	16.2	19.0	21.6	22.0
120	1.1	2.3	3.0	3.9	4.6	5.3	6.0	6.6	7.4	8.1	9.0	9.7	10.5	11.7	12.9	14.1	16.2	18.5	21.4	22.0
125	1.0	2.0	3.0	3.7	4.5	5.2	5.8	6.6	7.2	7.9	8.7	9.6	10.5	11.5	12.7	14.0	15.7	18.4	21.3	22.0
130	1.0	2.0	3.0	3.7	4.4	5.0	5.6	6.4	7.0	7.8	8.5	9.4	10.2	11.3	12.5	13.8	15.6	18.0	21.2	22.0
140	0.0	0.0	2.8	3.5	4.1	4.8	5.5	6.1	6.8	7.5	8.2	9.0	9.8	10.9	11.9	13.4	15.1	17.5	20.7	22.0
150	0.0	0.0	0.0	3.2	3.8	4.5	5.1	5.7	6.4	7.2	7.8	8.6	9.4	10.3	11.5	13.0	14.5	16.6	20.2	22.0
160	0.0	0.0	0.0	0.0	3.7	4.2	4.9	5.4	6.1	6.8	7.4	8.2	9.1	9.9	11.0	12.3	13.8	16.2	19.8	22.0
170	0.0	0.0	0.0	0.0	3.3	4.0	4.6	5.2	5.7	6.5	7.2	7.8	8.6	9.6	10.6	11.8	13.6	15.3	19.4	22.0
180	0.0	0.0	0.0	0.0	0.0	3.8	4.4	4.8	5.4	6.0	6.8	7.4	8.1	9.0	10.1	11.4	12.9	15.0	18.1	22.0
190	0.0	0.0	0.0	0.0	0.0	3.6	4.2	4.6	5.2	5.7	6.3	7.0	7.7	8.8	9.6	10.9	12.7	14.2	17.7	22.0
200	0.0	0.0	0.0	0.0	0.0	3.3	3.9	4.4	4.8	5.3	6.0	6.6	7.4	8.4	9.4	10.8	12.1	14.0	17.3	22.0
210	0.0	0.0	0.0	0.0	0.0	0.0	3.6	4.1	4.6	5.1	5.7	6.3	7.1	8.0	9.0	10.3	11.7	13.8	16.9	22.0

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