

## Reported CHO Ratios for Lignin

Sample	C	H	O	(OCH <sub>3</sub> )
MWL Lobolly Pine Juvenile <sup>1</sup>				
• Normal wood	9	8.32	3.01	0.92
• Wind opposite wood	9	8.57	3.19	0.88
• Wind compression wood	9	8.39	3.18	0.77
• Bent opposite wood	9	8.28	3.10	0.92
• Bent compression wood	9	8.76	3.26	0.66
MWL 30 mo-old Nalita <sup>2</sup>	9	9.11	3.97	1.36
MWL Aspen <sup>2</sup>	9	8.93	3.50	1.52
MWL Birch	9	8.59	2.86	1.52
saponified cork Douglas Fir Bark <sup>3</sup>	9	8.74	2.99	0.82
MWL Spruce <sup>3</sup>	9	8.21	2.76	0.97
MWL Spruce	9	8.62	2.48	0.94
Pinus oocarpa <sup>4</sup>	9	9.2	2.6	0.8
MWL Pinus abies <sup>5</sup>	9	8.30	2.72	0.97
Eucalyptus globulus dioxane lignin <sup>6</sup>	9	8.24	2.57	1.67
Oxygen-Acetone Pulping <sup>7</sup> Spruce	9	8.14	4.24	0.82
Oxygen-Ethanol Pulping Spruce <sup>7</sup>	9	9.05	3.46	0.79
Oxygen-Acetic Acid Pulping Spruce <sup>7</sup>	9	7.84	3.91	0.74
Acetylated piassava lignin <sup>8</sup>	9	7.53	2.44	0.57
HW Lignosulfonates	9	7.5	2.5	1.39(SO <sub>3</sub> H) <sub>0.6</sub>

SW Lignosulfonates <sup>9</sup>	<b>9</b>	<b>8.5</b>	<b>2.5</b>	<b>0.85 (SO<sub>3</sub>H)<sub>0.4</sub></b>
Pine Kraft Lignin	<b>9</b>	<b>7.9</b>	<b>2.1</b>	<b>0.82(S)<sub>0.1</sub></b>
HW Kraft Lignin	<b>9</b>	<b>7.2</b>	<b>1.8</b>	<b>1.15(S)<sub>0.1</sub></b>
SW Kraft Lignin <sup>9</sup>	<b>9</b>	<b>8.5</b>	<b>2.1</b>	<b>0.8 (CO<sub>2</sub>H)<sub>0.2</sub></b>
SW Organosolv Lignin <sup>9</sup>	<b>9</b>	<b>8.53</b>	<b>2.45</b>	<b>1.04</b>
Enzymatic hydrolyzed/Mild acid hydrolysis lignin from Norway Spruce TMP	<b>9</b>	<b>9.43</b>	<b>3.14</b>	<b>0.86</b>
Enzymatic hydrolyzed/Mild acid hydrolysis lignin from Eucalyptus Globulus woodchip	<b>9</b>	<b>8.80</b>	<b>3.26</b>	<b>1.51</b>
Modified Acidolysis from Eucalyptus Globulus woodchip	<b>9</b>	<b>8.24</b>	<b>2.57</b>	<b>1.62</b>
Beech Pyrolytic Lignin <sup>10</sup>	<b>8</b>	<b>6.3</b>	<b>0.83(OH)<sub>1</sub></b>	<b>0.8</b>
Mixed HW <sup>10</sup>	<b>8</b>	<b>6.65</b>	<b>0.99(OH)<sub>1.22</sub></b>	<b>0.42</b>
Eucalyptus <sup>10</sup>	<b>8</b>	<b>6.43</b>	<b>1.35(OH)<sub>1.14</sub></b>	<b>0.57</b>
Wheat Straw <sup>10</sup>	<b>8</b>	<b>7.18</b>	<b>1.21(OH)<sub>1.08</sub></b>	<b>0.37</b>
Poplar <sup>10</sup>	<b>8</b>	<b>6.7</b>	<b>0.94(OH)<sub>1.04</sub></b>	<b>0.63</b>
Mixed SW <sup>10</sup>	<b>8</b>	<b>7.08</b>	<b>1.06(OH)<sub>1.04</sub></b>	<b>0.33</b>
Pine <sup>10</sup>	<b>8</b>	<b>7.31</b>	<b>0.66(OH)<sub>1</sub></b>	<b>0.35</b>

## References

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