

ARTICLE

Table 1 Pyrolysis products identified in each fraction isolated by 2-MeTHF/water fractionation at room temperature

no.	RT ^a (min)	MW ^b	compounds	Origin ^c	Area (%)						
					No. 1 (1 day)			No. 2 (8 months)			milled wood
					Fr. 1	Fr. 2	Fr. 3	Fr. 1	Fr. 2	Fr. 3	
1	1.71	60	Acetic acid	C	3.3	52.2	11.1	21.5	53.2	24.2	15.4
2	4.97	96	Furfural	C	1.0	2.4	1.6	0.0	9.5	8.0	1.5
3	5.75	98	Furfuryl alcohol	C	0.0	0.7	0.0	1.3	3.9	0.7	0.6
4	6.19	116	1-Acetoxypropan-2-one	C	0.0	0.9	0.0	0.0	1.5	0.0	0.0
5	7.68	84	2(5H)-Furanone	C	0.0	0.8	0.0	1.3	2.5	0.0	0.6
6	8.01	98	1,2-Cyclopentanedione	C	0.6	1.4	0.0	1.4	0.9	0.0	0.6
7	9.71	110	5-Methyl-2-furfural	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8	10.96	112	5,6-Dihydropyran-2,5-dione	C	0.0	1.2	0.0	1.3	0.0	0.0	0.0
9	11.36	114	4-Hydroxy-5,6-dihydro-(2H)-pyran-2-one	C	0.9	2.0	0.0	0.0	0.0	1.8	2.8
10	12.30	112	Cyclotene/Maple lactone	C	0.3	0.9	0.0	0.0	1.9	0.0	0.5
11	14.77	124	Guaiacol	G	0.0	0.9	2.1	0.0	1.0	1.3	0.5
12	14.79	128	Dihydromaltol	C	0.4	0.0	0.0	0.0	0.0	0.0	0.0
13	18.89	138	4-Methyl Guaiacol	G	0.0	0.0	1.3	0.0	0.0	1.1	1.0
14	19.93		Anhydrosugar	C	0.3	0.0	0.0	0.0	0.0	0.0	0.4
15	20.57	126	5-Hydroxymethylfurfural(HMF)	C	1.9	0.0	0.0	0.0	0.0	0.0	1.0
16	21.43	140	3-Methoxycatechol	UL	0.2	0.0	1.5	0.0	0.0	2.5	0.7
17	21.64	124	4-Methylcatechol	UL	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18	22.11	152	4-Ethylguaiacol	G	0.0	0.0	0.6	0.0	0.0	0.0	0.0
19	23.25		Anhydrosugar	C	1.0	0.0	0.0	8.1	0.0	0.0	1.3
20	23.43	150	4-Vinylguaiacol	G	0.2	0.7	1.9	0.0	0.0	0.0	1.0
21	24.71	154	Syringol (1,3-dimethylpyrogallate)	S	0.9	4.4	9.6	0.0	5.0	6.2	2.3
22	24.79	164	Eugenol	G	0.0	0.0	0.0	0.0	0.0	0.0	0.1
23	26.45	152	Vanillin	G	0.0	0.0	1.1	0.0	0.0	1.0	0.3
24	26.71	164	cis-Isoeugenol	G	0.0	0.0	0.0	0.0	0.0	0.0	0.1
25	28.00	168	4-Methylsyringol	S	0.9	0.8	6.8	0.0	0.0	4.9	2.0
26	28.17	164	trans-Isoeugenol	G	0.2	0.0	0.0	0.0	0.0	0.0	0.5
27	28.38	166	Homovanillin	G	0.0	0.0	0.0	0.0	0.0	0.0	0.1
28	29.08	162	Guaiacol derivative (G-C3H3)	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	29.32	166	Acetovanillone	G	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	29.95	220	BHT	*	0.0	0.0	0.0	0.0	0.0	*	0.0
30	29.90	162	Levoglucofan	C	74.6	2.7	0.0	65.1	6.4	12.1	44.6
31	30.38		Anhydrosugar	C	1.9	0.0	0.0	0.0	0.0	0.0	0.0
32	30.47	182	4-Ethylsyringol	S	0.0	0.0	1.6	0.0	0.0	1.3	0.4
33	31.58	196	Unknown		0.0	0.0	5.7	0.0	0.0	0.0	0.0
34	31.73	180	4-Vinylsyringol	S	0.4	0.0	8.0	0.0	0.8	3.0	3.8
35	31.81	178	Guaiacyl vinyl ketone	G	0.8	2.9	2.9	0.0	0.0	0.0	0.0
	32.58	222	Diethyl phthalate	*	0.0	0.0	0.0	*	0.0	0.0	0.0
36	32.86	194	4-Allyl-syringol	S	0.3	0.9	2.2	0.0	0.0	0.8	0.7
37	34.34	194	cis-4-Propenylsyringol	S	0.0	0.0	0.9	0.0	0.0	0.6	0.0
38	34.61	182	Syringaldehyde	S	0.6	3.2	5.9	0.0	4.6	8.1	2.6
39	35.14	192	Syringol derivative (S-C3H3)	S	0.0	0.0	0.0	0.0	0.0	0.4	0.2
40	35.34	192	Syringol derivative (S-C3H3)	S	0.0	0.0	1.0	0.0	0.0	0.2	0.2
41	35.87	194	trans-4-Propenylsyringol	S	2.3	2.6	8.0	0.0	1.0	4.8	3.9
42	36.10		Anhydrosugar	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0
43	36.81		Anhydrosugar	C	3.8	0.0	0.0	0.0	0.0	0.0	0.0
44	36.69	196	Acetosyringone	S	0.2	1.0	2.2	0.0	0.7	1.7	1.1
45	36.86	178	trans-Coniferaldehyde	G	0.0	0.0	0.0	0.0	0.0	0.0	0.2
46	37.00	180	trans-Coniferyl alcohol	G	0.0	1.4	0.0	0.0	0.0	0.0	0.1
47	37.67	210	Syringyl acetone	S	0.3	1.7	0.0	0.0	3.2	4.5	0.9
48	37.85	212	Methyl syringate	S	0.0	0.0	2.6	0.0	0.0	0.3	0.0
49	38.99	198	Syringic acid	S	0.0	1.1	0.0	0.0	0.0	0.0	0.9
50	39.41	210	Unknown		0.0	0.0	1.3	0.0	0.0	0.0	0.0
51	39.23	210	Propiosyringone	S	0.0	0.7	1.6	0.0	2.8	7.8	0.0
52	39.44	208	Syringyl vinyl ketone	S	0.0	0.0	0.0	0.0	0.0	1.2	0.0
53	41.05	212	dihydrosinapyl alcohol	S	0.0	0.0	0.0	0.0	0.0	0.0	0.3
54	41.69	210	cis-Sinapyl alcohol	S	0.0	0.7	0.0	0.0	0.0	0.0	0.7
55	43.41	208	trans-Synapaldehyde	S	0.7	3.0	4.9	0.0	0.3	1.5	3.8
56	43.68	210	trans-Sinapyl alcohol	S	0.0	6.9	0.0	0.0	0.2	0.0	0.0

57	58.14	272	1,2-Diguaiacylethylene	GG	0.0	0.0	1.5	0.0	0.0	0.0	0.8
58	59.76	320	4,4'-Methylenebis(2, 6-dimethoxyphenol)	SS	0.0	0.0	1.0	0.0	0.0	0.0	0.0
59	62.96	302	1-Guaiacyl-2-syringylethylene	GS	0.7	0.8	3.8	0.0	0.0	0.0	0.8
60	67.33	332	1,2-Disyringylethylene	SS	1.0	1.0	7.4	0.0	0.4	0.0	0.8

^aRT: retention time; ^bMW: molecular weight; ^cC: carbohydrate, G: guaiacyl lignin, S: syringyl lignin, UL: non-specific lignin