



$\gamma$ C-H in-plane C-H bending		767.95	771.60	809.92	810.93	767.99	768.84	796.51	796.51
		769.77	771.96	810.93	811.01	768.84	770.96	798.05	798.05
		769.98	773.71	811.01		771.45	791.85	799.58	799.58
		771.60				772.02	792.44		935.99
		771.96				791.85			941.43
					792.44				
in-plane ring bending	765 (29)	791.07	791.07	1037.91	1038.22	791.91	791.91	1044.69	1044.69
		791.23	791.23	1038.22	1060.52	791.99	791.99	1044.85	1044.85
			791.68	1060.52	1063.33	792.36	792.36	1045.46	1045.46
				1082.98	1082.98	792.54	792.54		
				1084.52	1084.52				
$\gamma$ C-H in-plane C-C-H bending	908 (21)	801.30	801.57				853.54	1065.31	1065.31
	778 (100)	801.57	802.15				930.22		
		802.15	939.00				937.16		
		942.68	942.68						
		943.37	943.37						
in-plane ring and C-H bending	1018 (71)	1026.95	1026.95	1098.88	1098.88	1028.70	1028.70	1065.57	1065.57
		1027.14	1027.14	1100.67	1100.67	1029.07	1029.07	1065.91	1065.91
		1028.82	1040.85	1109.08	1152.87	1030.48	1030.48	1067.80	1067.80
		1040.85	1041.29	1152.33	1234.28	1042.51	1042.51	1085.92	1068.26
		1041.29	1045.45	1234.28		1042.60	1042.60	1086.52	1085.92
				1234.63			1045.86	1087.65	1086.52
			1242.53					1087.65	
in-plane ring bending	1062 (32)	1076.15	1077.15			1075.96	1093.11	1102.07	1102.07
	1040 (14)	1093.58	1093.58			1076.84	1093.48	1104.36	1104.36
		1093.75	1093.75			1077.02	1093.88	1105.28	1105.28
		1094.10	1094.10			1093.11		1109.51	1109.51
						1093.48		1111.36	1111.36
					1093.88		1111.91	1111.91	
in-plane ring and C-H bending	1100 (26)	1147.60	1147.60	1306.71	1306.71	1146.12	1146.12	1153.70	1153.70
		1147.82	1147.92	1310.55	1313.22	1146.39	1146.39	1154.28	1154.28
				1313.22	1315.11	1146.64	1146.64	1156.14	1156.14
				1315.11				1156.14	1173.34
in-plane C-H bending	1179 (30)	1162.67	1227.09	1365.05	1380.65	1161.70	1161.70	1225.14	1225.14
	1160 (47)	1162.86	1227.63	1366.04	1381.00	1161.90	1161.90	1225.73	1225.73
		1163.63	1227.82	1368.60	1381.69	1162.49	1219.63	1226.44	1226.44
		1227.09	1238.78	1380.65		1219.63	1219.99	1234.35	1234.35
		1227.63	1238.95	1381.00		1219.99	1220.79	1234.85	1234.85
		1227.82	1239.50			1220.79	1230.71	1237.53	1237.53
		1238.78				1230.71	1231.32		
		1238.95				1231.32			
$\nu$ C-C, $\nu$ C-N stretching and in-plane C-H bending	1490 (30)	1307.99	1307.99	1485.33	1482.69	1308.27	1308.27	1308.87	1308.87
	1470 (39)	1308.15	1308.15	1486.13	1485.33	1308.42	1308.42	1311.96	1311.96
	1442 (75)	1309.12	1309.12	1502.63	1486.13	1308.91	1308.91	1314.62	1314.62
	1312 (45)	1315.51	1315.51	1502.73	1516.80	1314.88	1314.71	1316.16	1316.16
	1284 (11)	1315.65	1315.65	1503.68	1517.47	1334.96	1314.88	1319.84	1319.84
	1249 (20)	1361.85	1319.05	1510.73	1544.79	1361.62	1318.38	1341.12	1327.36
	1230 (17)	1361.94	1333.90	1516.80	1546.53	1362.56	1334.37	1345.23	1341.12
		1362.92	1334.28	1517.47	1547.26	1363.20	1334.96	1345.69	1345.23
		1363.62	1335.56	1546.53	1610.65	1364.07	1335.94	1366.96	1345.69
		1363.86	1361.85	1547.26	1610.85	1365.98	1361.62	1369.54	1366.96
		1364.49	1361.94	1610.85	1611.06	1366.08	1362.56	1371.47	1369.54
		1482.01	1362.92	1611.06	1643.32	1482.75	1363.20	1383.90	1383.90
		1482.24	1363.62	1643.32	1643.59	1482.85	1364.07	1384.75	1384.75
		1497.53	1363.86	1643.59	1643.87	1496.38	1365.98	1390.23	1390.23
		1497.62	1364.49	1643.87	1644.11	1496.67	1366.08	1485.49	1485.49
		1497.86	1480.60	1645.43	1645.43	1515.01	1480.96	1488.73	1488.73

		1514.63	1482.01	1645.60	1645.60	1518.34	1482.75	1490.04	1490.04
		1517.26	1482.24			1536.52	1482.85	1503.53	1503.53
		1517.39	1497.53			1537.24	1518.34	1504.31	1504.31
		1537.41	1497.62			1537.53	1536.52	1504.61	1520.51
		1537.50	1497.86				1537.24	1514.57	1522.08
			1514.63				1537.53	1520.51	1548.96
			1517.26					1522.08	1551.12
			1517.39					1548.96	1552.99
			1536.72					1551.12	
			1537.41					1552.99	
			1537.50						
			1614.45						
	1570 (26)	1614.65	1614.65			1615.78	1615.51	1616.68	1616.68
		1614.75	1614.75			1615.85	1615.78	1616.93	1616.93
		1622.90				1624.25	1615.85	1617.32	1617.32
		1623.02				1624.32		1621.81	1621.81
		1623.97				1624.62		1622.19	1622.19
v C-C, v C-N Stretching								1622.57	1651.40
								1651.40	1651.92
								1651.92	1652.74
								1652.74	1653.17
								1653.17	1654.63
								1654.63	1654.90
								1654.90	
	1600 (72)	1642.99	1642.99			1644.39	1644.39		
		1643.23	1643.23			1644.68	1644.68		
		1643.30	1643.30			1644.95	1644.95		
		1645.87	1646.94			1647.31	1647.31		
		1646.94	1646.98			1648.19	1648.19		
		1646.98				1648.46	1648.46		
		3233.01	3233.01	3241.95	3240.34	3234.31	3234.31	3248.72	3248.72
		3233.07	3233.07	3242.38	3240.69	3234.33	3234.33	3249.52	3249.52
		3233.17	3233.17	3242.42	3240.72	3234.52	3234.52	3249.79	3249.79
		3242.24	3234.36	3250.26	3241.95	3235.56	3235.56	3250.77	3250.77
		3250.15	3234.39	3250.47	3242.38	3235.71	3235.71	3250.83	3250.83
		3250.44	3234.49	3250.56	3242.42	3235.97	3235.97	3251.22	3251.22
		3250.80	3242.01	3257.37	3250.26	3247.04	3247.04	3291.50	3262.63
		3256.61	3242.05	3257.74	3250.47	3247.42	3247.42	3294.54	3262.73
		3256.80	3242.24	3257.77	3250.56	3247.66	3247.66	3297.28	3265.40
		3259.01	3243.29	3263.74	3253.97	3248.69	3248.69	3299.50	3265.50
			3243.47	3263.80	3245.37	3248.84	3248.84	3302.05	3266.33
			3243.64	3263.93	3245.41	3248.88	3248.88	3314.24	3267.59
v C-H Stretching			3250.15		3257.37	3253.27	3253.27		3269.14
			3250.44		3257.74	3254.82	3254.82		3269.22
			3250.80		3257.77	3255.07	3255.07		3271.62
			3256.61		3263.74	3261.87	3261.87		3276.98
			3256.80		3263.80	3261.94	3261.94		3277.69
			3256.95		3263.93	3262.16	3262.16		3278.05
			3258.70		3289.52	3263.40	3263.40		3291.50
			3258.82		3290.10	3263.70	3263.70		3294.54
			3264.45		3290.26	3263.88	3263.88		3297.28
			3264.63		3290.45	3267.80	3267.80		3299.50
			3264.94		3291.30	3267.98	3267.98		3302.05
					3292.10	3268.64	3268.64		3314.24

<sup>a</sup> For the notations and assignments see Ref. [53]