

Table with characteristic absorbance in NIR

Wavelength [nm]	Wavenumber [cm ⁻¹]	Chemical binding	Product example
1000	10000	O-H str. second overtone	ArOH
1015	9852	2x C-H str. +3x C-H def.	CH ₃
1020	9804	2x N-H str. +2x amide I	protein
1020	9804	N-H str. second overtone	ArNH ₂
1030	9709	N-H str. second overtone	RNH ₂
1037	9643	2x C-H str. +2x C-H def.+(CH ₂) _n	oil
1053	9497	2x C-H str. +2x C-H def.+(CH ₂) _n	CH ₂
1060	9434	N-H str. second overtone	RNH ₂
1080	9259	2x C-H str. +2x C-C str.	benzene
1097	9116	2x C-H str. +2x C-C str.	cyclopropane
1143	8749	C-H str. second overtone	aromatic
1152	8681	C-H str. second overtone	CH ₃
1170	8547	C-H str. second overtone	HC=CH
1195	8368	C-H str. second overtone	CH ₃
1215	8230	C-H str. second overtone	CH ₂
1225	8163	C-H str. second overtone	CH
1360	7353	2x C-H str. + C-H def.	CH ₃
1395	7168	2x C-H str. + C-H def.	CH ₂
1410	7092	O-H str. first overtone	ROH
1415	7067	2x C-H str. + C-H def.	CH ₂
1417	7057	2x C-H str. + C-H def.	aromatic
1420	7042	O-H str. first overtone	ArOH
1430	6993	O-H str. first overtone	sucrose,starch
1440	6944	2x C-H str. + C-H def.	CH
1446	6916	2x C-H str. + C-H def.	aromatic
1450	6897	O-H str. first overtone	starch,H ₂ O
1460	6849	N-H str. first overtone	CONH ₂
1471	6798	N-H str. first overtone	CONHR
1480	6757	O-H str. first overtone (intramol.H-bond)	glucose
1483	6743	N-H str. first overtone	CONH ₂
1490	6711	N-H str. first overtone	CONHR
1490	6711	N-H str. first overtone (intramol.H-bond)	CONH ₂
1490	6711	O-H str. first overtone (intramol.H-bond)	cellulose
1492	6702	N-H str. first overtone	ArNH ₂
1500	6667	N-H str. first overtone	NH
1510	6623	N-H str. first overtone	protein
1520	6579	O-H str. first overtone	CONH ₂
1520	6579	N-H str. first overtone (intramol.H-bond)	ROH
1528	6545	O-H str. first overtone (intramol.H-bond)	starch
1530	6536	N-H str. first overtone	RNH ₂
1533	6523	C-H str. first overtone	=CH
1540	6494	O-H str. first overtone (intramol.H-bond)	starch
1570	6369	N-H str. first overtone	-CONH-
1580	6329	O-H str. first overtone (intermol.H-bond)	starch,glucose

1620	6173	C-H str. first overtone	
1645	6079	C-H str. first overtone	R-CH-CH
1660	6024	C-H str. first overtone	cis-RCH=CHR'
1685	5935	C-H str. first overtone	aromatic
1695	5900	C-H str. first overtone	CH3
1705	5865	C-H str. first overtone	CH3
1725	5797	C-H str. first overtone	CH2
1740	5747	S-H str. first overtone	SH
1765	5666	C-H str. first overtone	CH2
1780	5618	C-H str. first overtone	cellulose
1820	5495	O-H str.+2x C-O str.	cellulose
1900	5263	O-H str. +2x C-O str.	starch
1900	5263	C=O str. second overtone	-CO2H
1908	5241	O-H str. first overtone	POH
1920	5208	C=O str. second overtone	CONH
1940	5155	O-H str. + O-H def.	H2O
1950	5128	C=O str. second overtone	-CO2R
1960	5102	N-H Asym.str. + amide II	CONH2
1980	5051	N-H Asym.str. + amide II	protein
2000	5000	2x O-H def.+ C-O def.	starch
2000	5000	N-H sym.str. +amide II	CONH2,CONHR
2030	4926	C=O str. second overtone	CONH2
2050	4878	N-H sym.str. + amide II	protein
2050	4878	N-H Asym.str. + amide II	CONH2
2080	4808	O-H str. + O-H def.	ROH,sucrose,starch
2100	4762	2x O-H def.+ 2x C-O str.	starch
2110	4739	N-H sym.str. + amide III	CONH2,CONHR
2132	4690	N-H str. + C=O str.	amino acid
2140	4673	=C-H str. + C=C str.	HC=CH
2150	4651	2x amide I+ amide III	CONH2
2160	4630	2x amide I+ amide III	CONHR
2180	4587	2x amide I+ amide III	protein
2190	4566	CH2 Asym.str. + C= str.	HC=CH
2200	4545	C-H str. + C=O str.	-CHO
2242	4460	N-H str. + NH3+ def.	Amino acid
2252	4440	O-H str. + O-H def.	starch
2276	4394	O-H str. + C-C str.	starch
2280	4383	C-H str. + C-H def.	CH3
2294	4359	N-H str. + C=O str.	amino acid
2310	4329	N-H str. + C-H def.	CH2
2323	4305	C-H str. + C-H def.	CH2
2336	4281	C-H str. + C-H def.	cellulose
2347	4261	CH2 sym.str. + =CH2 def.	HC=CHCH2
2352	4252	C-H def.second overtone	cellulose
2380	4202	O-H def.second overtone	ROH
2461	4063	C-H str. + C-C str.	starch

Absorption Bands in the Near-Infrared

