


		3600	3400	3200	3000	2800	2600	2400 cm ⁻¹	
						s			-CH ₃ >CH ₂
						w			>C-H
					w				
							w		-CHO
						m			-OCH ₃
							m		-O-CH ₂ -O-
							m		>N-CH ₃
			s						-C≡C-H
					m				>C=C< _H
						m			>C=C< _H
						w			aryl-H
Free OH		H-bridged oligomers			Intramolecular H-bridges			v	-O-H
				m					-NH ₂ =NH
		m	m			w			-CONH ₂ in solution
						m			-CONH ₂ solid state
			m						-CONH- in solution
						m			-CONH- solid state
						m			-NH ₃ ⁺
							m		>NH ₂ ⁺ >NH ⁺ =NH ⁺ -
								w	S-H
								m	P-H
								m	P<O-H

Valence vibrations of hydrogen, $\nu(\text{H-Y})$; intensity: s, strong; m, medium; w, weak; and v, variable.

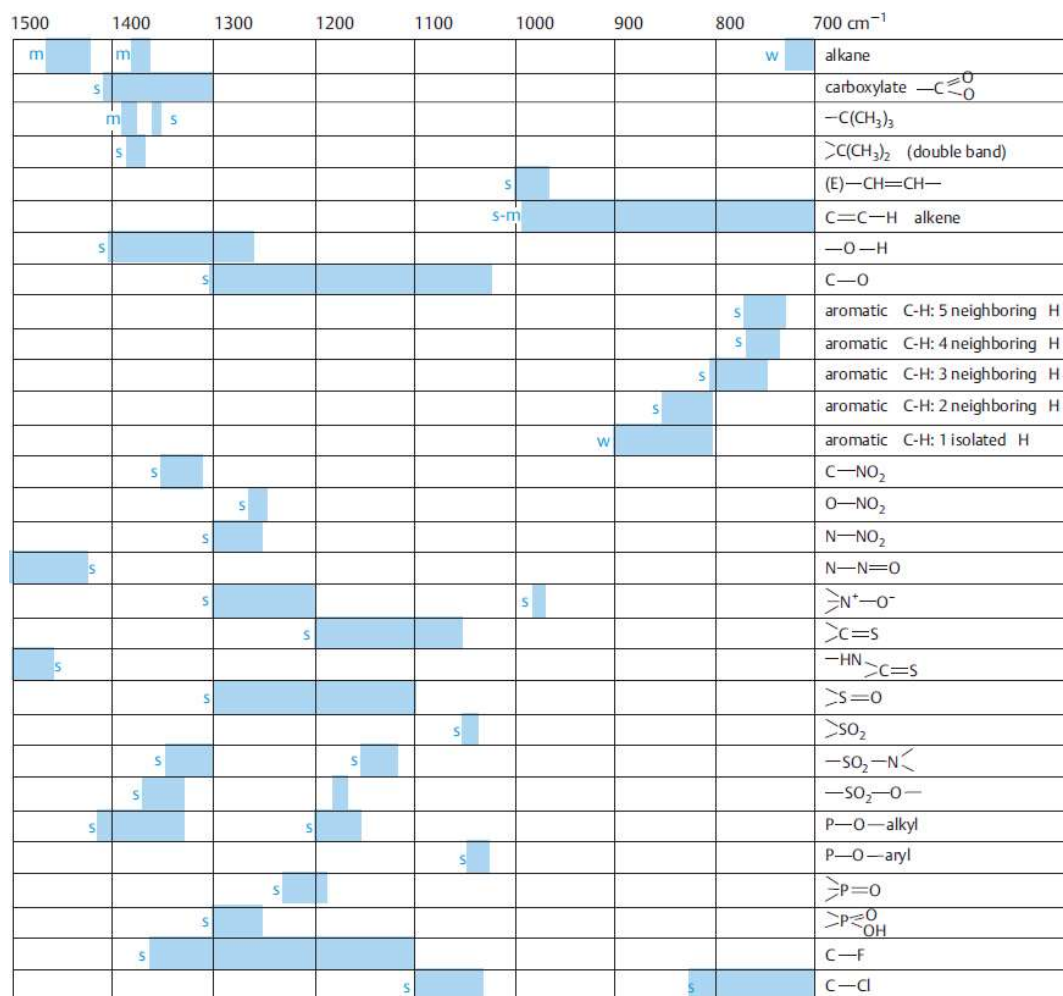
2400	2300	2200	2100	2000	1900	cm ⁻¹	
							—C≡CH
							—C≡C—
							—C≡N
							—N ⁺ ≡N
							—S—C≡N
							O=C=O
							—N=C=O
							—N=N=N
							—N=C=N—
							>C=C=O
							—N=C=S
							>C=N=N
							>C=C=N—
							>C=C=C<

Valence vibrations of triple bonds and cumulated double bonds;
intensity: s, strong; m, medium; w, weak; and v, variable.

1800	1700	1600	1500	1400	cm ⁻¹	
						—NH ₂ (amide: s)
						>NH (amide: s)
						—NH ₃ ⁺
						>C=C<
						>C=C< (conj. to aryl)
						diene (1), triene (2)
						>C=O
						C=C—C=O
						>C=N<
						C=C—C=N<
						>C=N— (conj. cyclic)
						>N=N<
						O>N ⁺ =N<
						—HN<N ⁺ =N<
						>C=C<—N—>C=C<—O—
One or two bands						arenes, pyridines
						C—NO ₂
						O—NO ₂
						N—NO ₂
						C—N=O
Two bands						O—N=O
						N—N=O

1900	1800	1700	1600	1500	cm ⁻¹
					aldehyde (saturated)
					aldehyde (α,β -unsaturated; aryl-)
					ketone (saturated, open chain)
	4-membered	5-membered			ketone (cyclic; 4- and 5-membered ring)
					ketone (α,β -unsaturated; aryl-)
					ketone (α - and α,α' -halogenated)
					ketone (α,β -, α',β' -unsaturated; quinone)
					ketone, aldehyde or ester with H-bridge
					1,2-diketone
					ester (saturated, open chain)
	4-membered	5-membered			ester (4- and 5-membered lactone)
					ester (α,β -unsaturated; aryl-)
					ester (α,β -unsaturated five-ring lactone)
					ester (β,γ -unsaturated five-ring lactone)
					ester (vinylester -CO-O-C=C)
					ester (α -halogen- and α -keto-ester)
					thioester R-CO-S-R'
					carboxylic acid (saturated)
					carboxylic acid (α,β -unsaturated; aryl-)
					carboxylic acid chloride
					carboxylic acid anhydride
					carboxylic acid (α -halogenated)
					carboxylate ion
					peroxo carboxylic acid (R-CO-OO-H)
					amide (primary, in solution)
					amide (primary, solid state)
					amide (N-monosubstituted, in solution)
					amide (N-monosubstituted, solid state)
					amide (N,N-disubstituted)
					amide (4- and 5-membered lactam)
					imide
					urethane

Carbonyl valence vibrations $\nu(\text{C}=\text{O})$; all bands are strong



Characteristic absorptions in the fingerprint range; intensity: s, strong; m, medium; and w, weak.