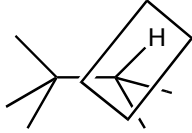
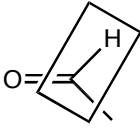
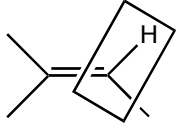
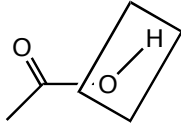
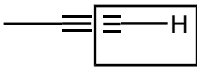
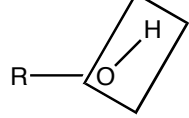
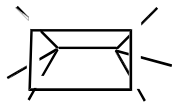
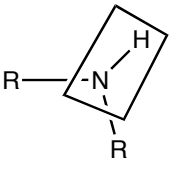
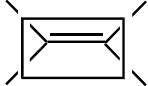
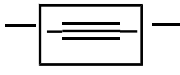
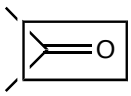
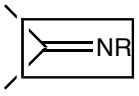
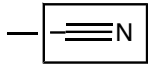
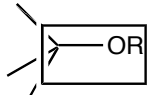
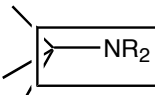
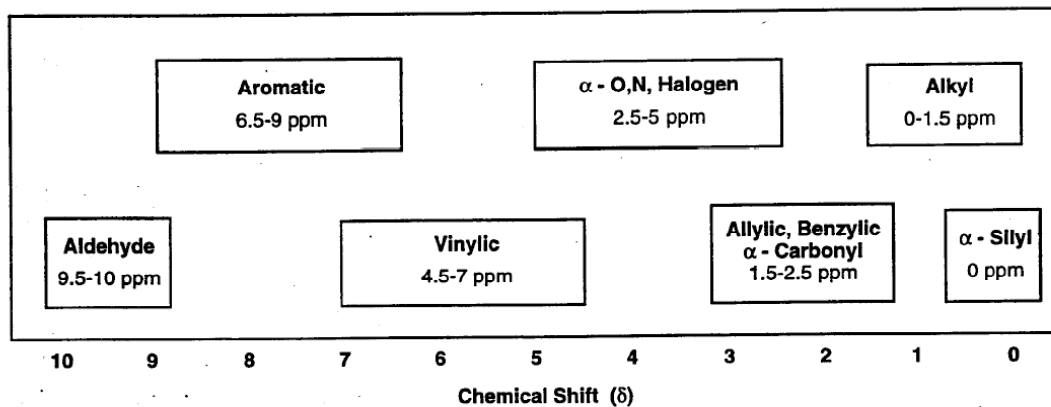


Spectroscopic Reference Guide for IR and NMR

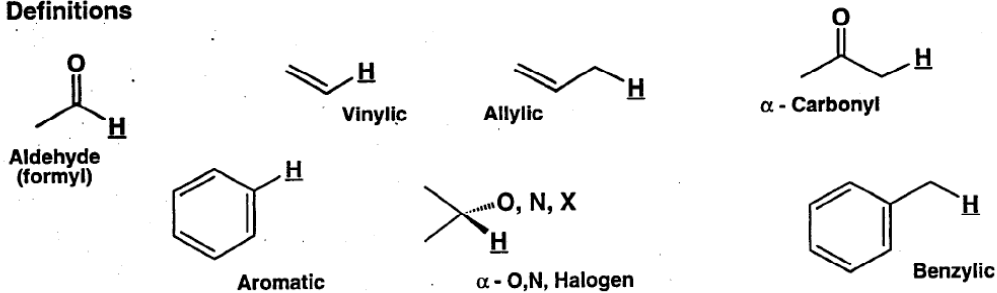
Approx. Freq. of Stretching Modes in cm^{-1}

	2800-3000		2700, 2800
	3000-3100		3300
	3300		3300
	1200		3300
	1660 (not conjugated)		
	2200 (not conjugated)		
	1700 (esters higher, amides lower)		
			
	2300 (not conjugated)	<u>Approx. Freq. of Bending Modes in cm^{-1}</u>	
	1200	-CH ₃ antisymmetric	1460
		symmetric	1385
		CH ₂ scissor	1460
		rock	695

Proton NMR Chemical Shifts



Definitions



Carbon NMR Chemical Shifts

