

IR shift frequencies		
bond	compound type	frequency range (cm ⁻¹)
C-H	alkanes sp C-H sp ² C-H sp ³ C-H	2850 - 2960, 1350 - 1470 3310 - 3320 3000 - 3100 2850 - 2950
C-H	alkenes	3020 - 3080 (m), 675 - 1000
C-H	arenes	3000 - 3100 (m), 675 - 870
C-H	alkynes	3300
C=C	alkenes	1640 - 1680 (v) [1620 - 1680 - stretching, 790 - 910 - bending]
C≡C	alkynes	2100 - 2260 (v)
C=C	arenes	1500, 1600 (v) [690 - 840 - bending]
C-O	alcohols, ethers, carboxylic acids, esters sp ² C-O sp ³ C-O	1080 - 1300 1200 1025 - 1200
C=O	aldehydes, ketones, carboxylic acids, esters aldehydes and ketones carboxylic acids acid anhydrides acyl halides esters amides	1690 - 1760 [1710 - 1750] [1700 - 1725] [1800 - 1850 and 1740 - 1790] [1770 - 1815] [1730 - 1750] [1680 - 1700]
O-H	monomeric alcohols, phenols	3610 - 3640 (v)
O-H	hydrogen-bonded alcohols, phenols	3200 - 3600 (broad)
O-H	carboxylic acids	2500 - 3000 (broad) [2500 - 3600]
N-H	amines	1180 - 1360 [3350 - 3500 - stretch]
C-N	amines	1180 - 1360
C≡N	nitriles	2210 - 2260 (v)
-NO ₂	nitro compounds	1515 - 1560, 1345 - 1385

All bands are strong unless marked as moderate (m) or variable (v) in intensity; bracketed values [] are those listed in Carey (Table 13.4, p. 519) that vary from those reported in Morrison and Boyd (Table 13.3, p. 412)