Summary of IR values

wavenumber	functional group	description
3500-3300	alcohol, COH or amine, CNR_2	alcohol is strong, broad amine is usually weak/medium, broad, 2 peaks = 1° amine (RNH_2), 1 peak = 2° amine (RR'NH)
3400-2400	acid, COOH	very broad, also will have C=O at ~ 1700
3300	alkyne (terminal)	sharp, ≡C-H stretch, also will have 2150 peak
3050	alkene or aromatic	=C-H stretch, usually weak
2950	alkane	-C-H stretch, usually weak
2750	aldehyde, CHO	=C-H stretch, also ~1700 peaks
2250	nitrile	C≡N stretch, medium to strong
2150	alkyne	C≡C stretch, usually weak
1810, 1760	anhydride, $(CO)_2O$	C=O stretch, -30 if conj.
1800	acid chloride, COCl	C=O stretch, -30 if conj.
1735	ester, COOR	C=O str, -25 if conj at C=O, +30 if conj at O
1725	aldehyde, CHO	C=O str, -30 if conj., also 2750 peak
1715	ketone, CO	C=O str, -30 if conj., **no** 2750 peak
1710	acid, COOH	C=O str, -30 if conj., also v. broad 3400-2400 -OH
1690	amide, $CONR_2$	C=O str , -30 if conj., also 3300 peak unless 3°
1650	alkene	C=C stretch
1250	alkane	C-C stretch
1220	O-Aryl	O-C str, confirmatory only
1150	O-*tert*-C, 3° (RR'R"C-O)	O-C str, confirmatory only
1100	O-*sec*-C, 2° (RR'HC-O)	O-C str, confirmatory only
1050	O-*prim*-C, 1° (RH_2C-O)	O-C str, confirmatory only
990, 910	mono alkene, $RCH=CH_2$	=C-H bend, usually strong, **two peaks**
970-960	*trans*-RCH=CHR	=C-H bend, usually strong
900	1,1-disubst. alkene, $R_2C=CH_2$	=C-H bend, usually strong
880, 780, 690	*meta*-disubst. Ar ring	=C-H bend, **three peaks**
~825±25	*para*-disubst. Ar ring	=C-H bend, **one peak**
~750±25	*ortho*-disubst. Ar ring	=C-H bend, **one peak**
~700	*cis*-RCH=CHR	=C-H bend, weak to medium, position varies
700, 690	mono-subst. Ar ring	=C-H bend, **two peaks**

INFRARED ABSORPTION FREQUENCIES OF COMMON FUNCTIONAL GROUPS