ORGANIC CHEMISTRY 2 LECTURE GUIDE 2019

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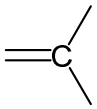
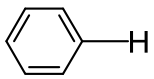
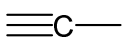
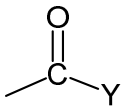
Lesson VII.6. Carbon-13 Nuclear Magnetic Resonance Spectrometry

Carbon-13 NMR table

General trends in ^{13}C NMR shifts are provided here:

Carbon (Shown)	Chemical Shift
$Si(CH_3)_4$	0
$-CH_3$	10-35
$-CH_2-$	15-50
	20-60
	30-40
	100-150
	110-175
	60-85

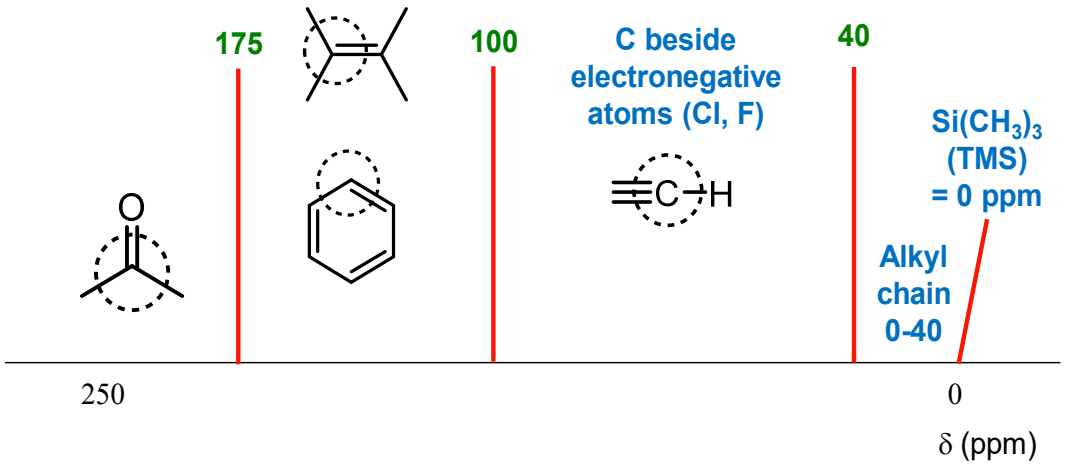
Carbon (Shown)	Chemical Shift
O—C	50-80
N—C	40-60
C—X	X = I 0-35 X = Br 20-65 X = Cl 35-80
	Y = H 190-200 R 200-220 OR 160-180 OH 175-185 NR_2 165-175

Notes

Lesson VII.6. Carbon-13 Nuclear Magnetic Resonance Spectrometry

Carbon-13 NMR trends

Carbon-13 NMR typical shifts in a more user-friendly format:

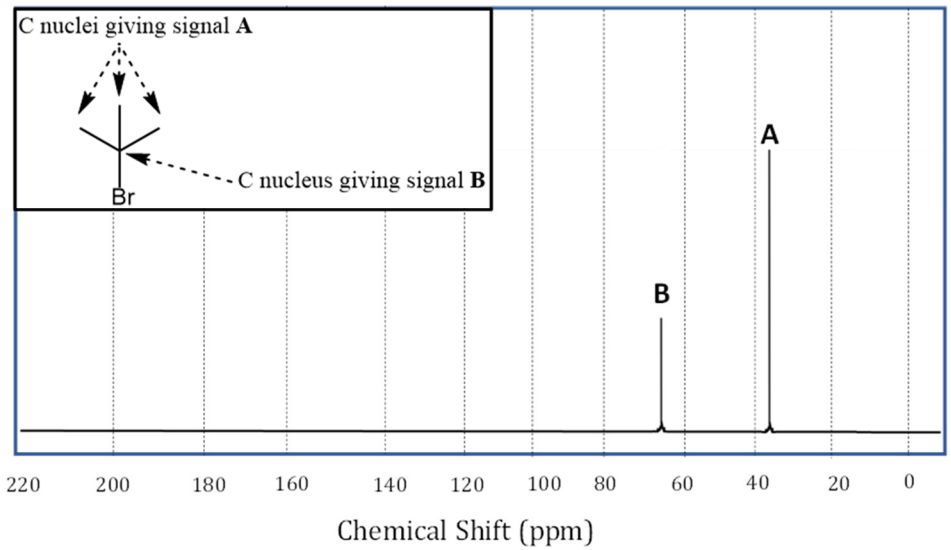


Notes

Lesson VII.6. Carbon-13 Nuclear Magnetic Resonance Spectrometry

Carbon-13 NMR spectra

Carbon-13 NMR is usually run in such a way as to avoid any splitting, so the signals tend to all be singlets. Using our knowledge of the usual ranges for ^{13}C NMR resonances, we can infer some structural information from this spectrum:



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