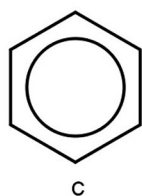


Wichtige Chemische Verschiebungen (Mittelwerte)

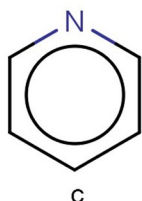
Strukturelement		δ [^{13}C]	δ [^1H]
$>\text{C}=\text{O}$	Keton	205	-
$-\text{CHO}$	Aldehyd	190	9.5
$\text{COOH},$ COOR	Carbonsäure Ester	170 170	12 -
$\text{CONH}-$	Amid	170	-
$=\text{CH}$	Aromat	110-140	6-8
$=\text{Cq}$	Aromat	130-155	-
$=\text{CH}$	Alken	90-130	5-8
$-\text{C}\equiv\text{N}$	Nitril	115	-
$-\text{COO}-$	Ester	65	4
$-\text{O}-$	Ether/Alkohol	58 / 66 / 74	3.3 / 3.5 / 3.8
$-\text{NH}_n-$	Amin	35 / 46 / 51	2.4 / 2.5 / 2.6
$\text{Cl}-$	Chlorid	40	3.5
$\text{Br}-$	Bromid	27	3.5
$-\text{CO}-$		35	2.3
Aromat-		21 / 27 / 34	2.0 / 2.3 / 2.6
Alken-		21 / 27 / 34	2.0 / 2.3 / 2.6
Aliphat / Aromat $-\text{OH}$	-	1-4 / 6-9	
Aliphat / Aromat $-\text{NH}_n$	-	1-3 / 3-6	
Amid / Pyrrol NH	-	-	8

Kopplungskonstanten (mit Chem. Verschiebungen)

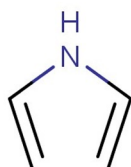
$-\text{CH}_n-\text{CH}_n-$ 7 Hz



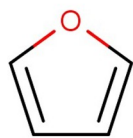
a: **126** / 7.3
 J_{ab} : 7.5Hz
 J_{ac} : 1.3Hz



a: **150** / 8.6
 J_{ab} : 5.5Hz
b: **124** / 7.3
 J_{bc} : 7.6Hz
c: **136** / 7.7



$J_{aa'}$: 2.1Hz
a: **118** / 6.6
 J_{ab} : 2.6Hz
b: **107** / 6.1
 $J_{bb'}$: 3.5Hz



$J_{aa'}$: 1.5Hz
a: **143** / 7.4
 J_{ab} : 1.8Hz
b: **110** / 6.4
 $J_{bb'}$: 3.4Hz