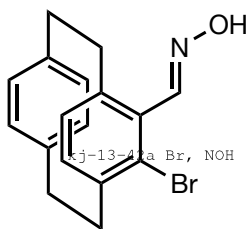
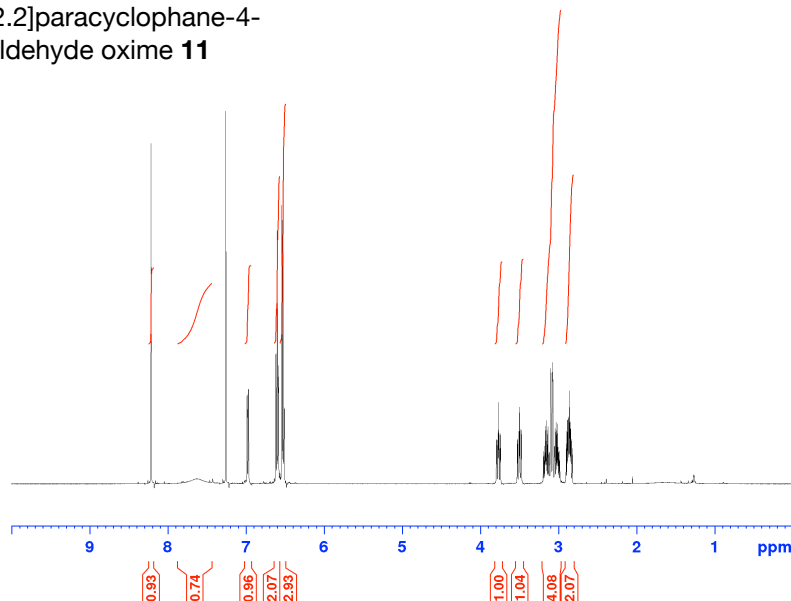


Supplementary information: The synthesis of planar chiral *pseudo-gem* aminophosphine pre-ligands based on [2.2]paracyclophane

Krishanthi P. Jayasundera, Tim G. W. Engels, David J. Lun, Maulik N. Mungalpara, Paul, G. Plieger, and Gareth J. Rowlands*



5-bromo[2.2]paracyclophane-4-carbaldehyde oxime **11**



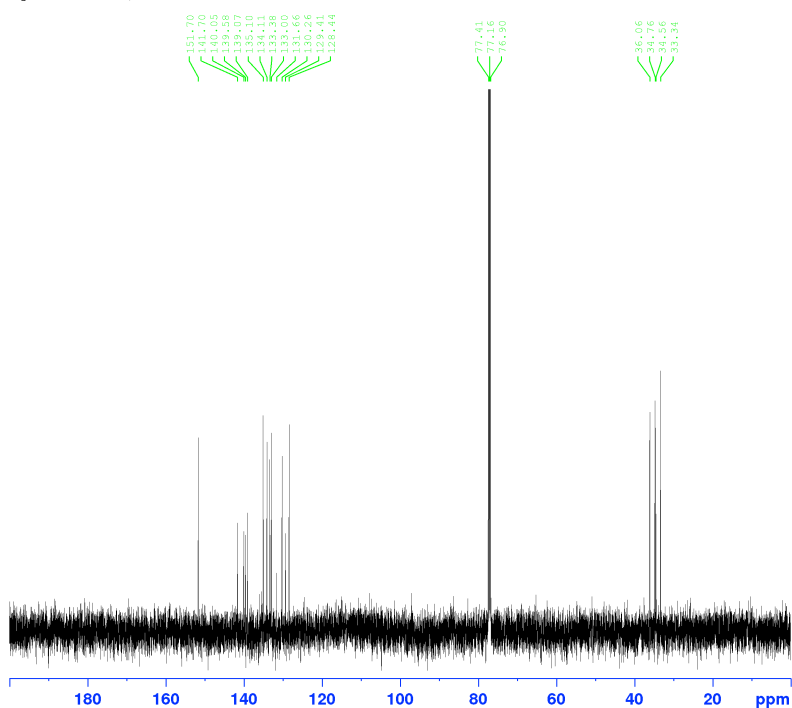
Current Data Parameters
NAME kj-13-42a Br, NOH
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140915
Time 11.22
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 128
DW 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300132 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-42a Br, NOH



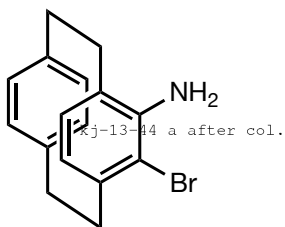
Current Data Parameters
NAME kj-13-42a Br, NOH
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140915
Time 11.28
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 199
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

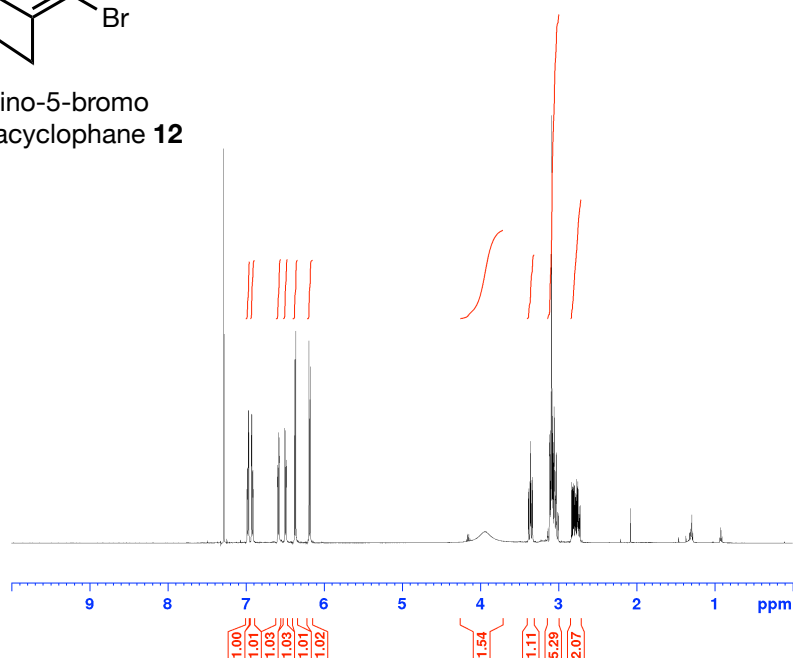
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPDZ 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL12W 12.10000038 W
PL13W 0.13988955 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577726 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



4-amino-5-bromo
[2.2]paracyclophane **12**



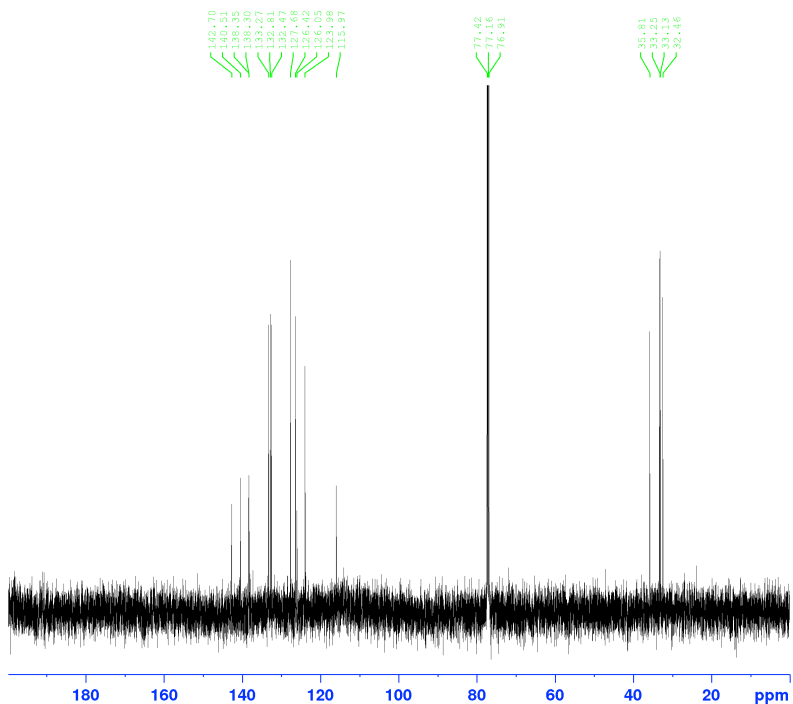
Current Data Parameters
NAME kj-13-44a
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140917
Time 14.46
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 161.3
DW 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SF01 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-44 a after col.



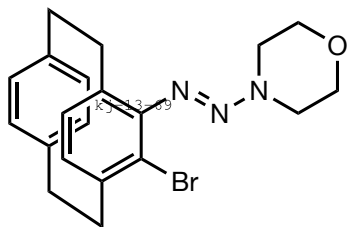
Current Data Parameters
NAME kj-13-44a
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140917
Time 14.58
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 203
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

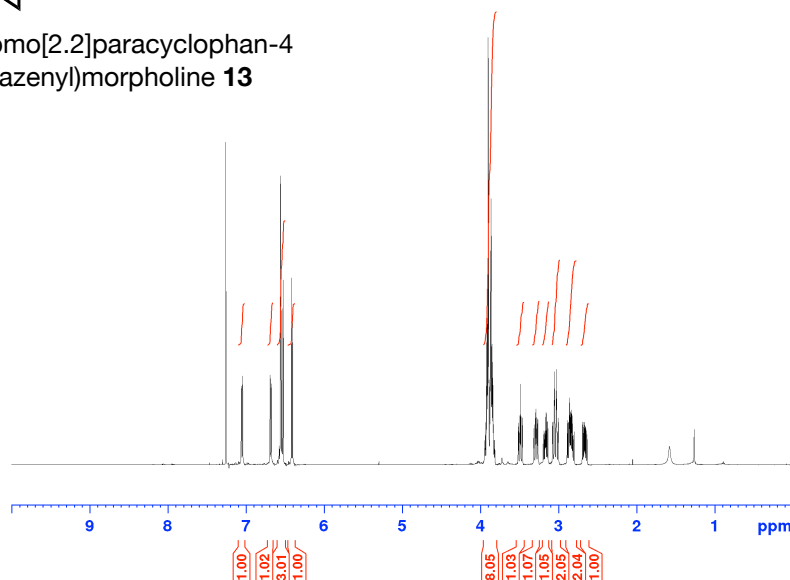
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SF01 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL2W 12.10000038 W
PL12W 0.13988955 W
PL13W 0.09611372 W
SF02 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577726 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



4-(5-bromo[2.2]paracyclophan-4-ylidiazenyl)morpholine **13**



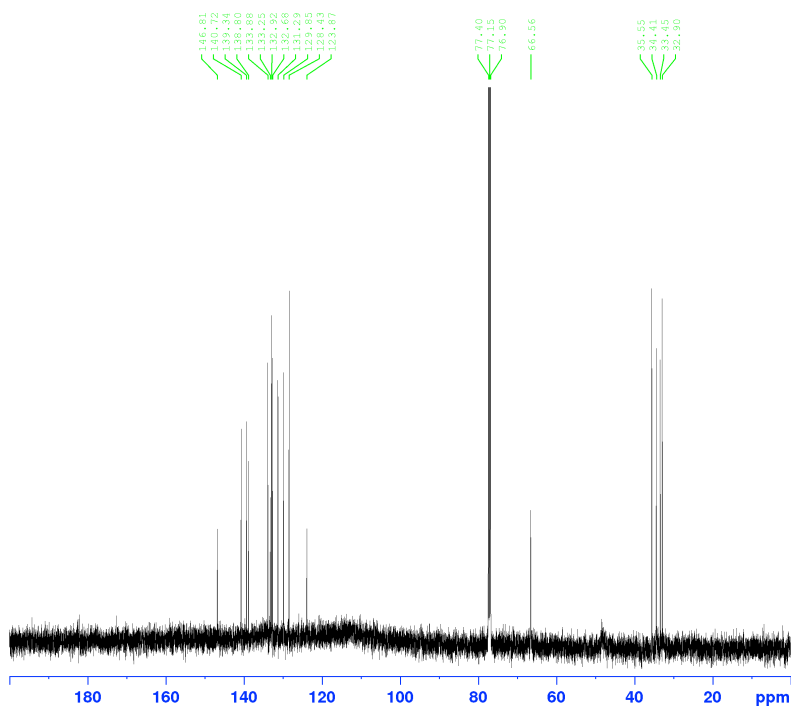
Current Data Parameters
NAME kj-13-69
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20150312
Time 10.05
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 128
DW 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300141 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-69



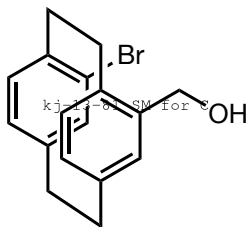
Current Data Parameters
NAME kj-13-69
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20150312
Time 10.46
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 783
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

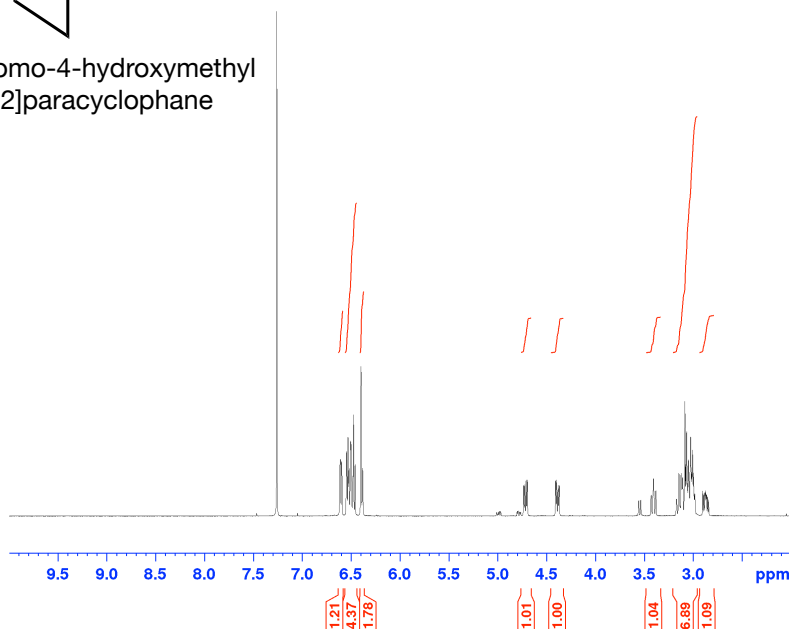
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG[2] waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL12W 12.10000038 W
PL12W 0.13988955 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577747 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



13-bromo-4-hydroxymethyl
[2.2]paracyclophane



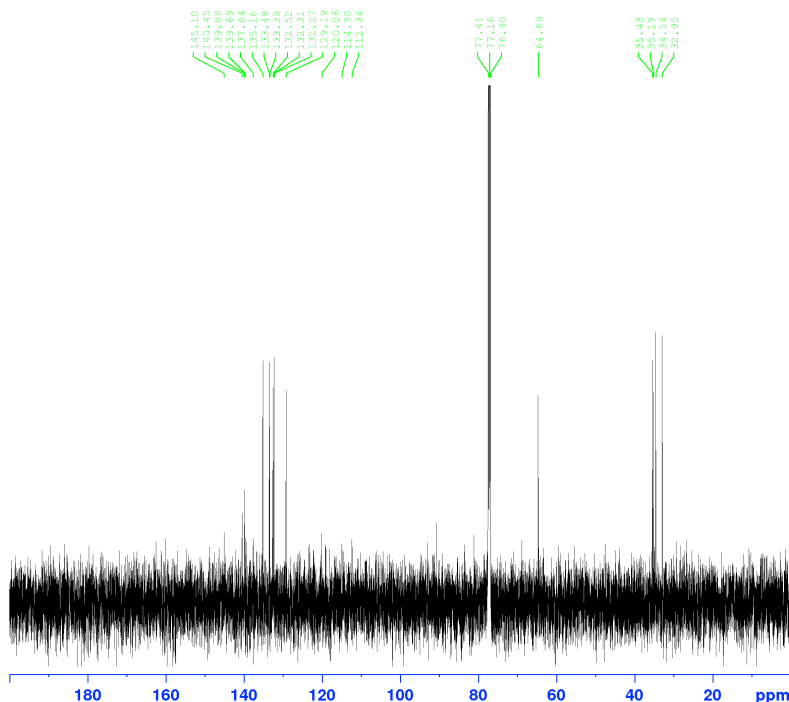
Current Data Parameters
NAME kj-13-81 for C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20160317
Time 12.26
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 256
DW 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330889 MHz

F2 - Processing parameters
SI 32768
SF 500.1300135 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-81 for C



Current Data Parameters
NAME kj-13-81 for C
EXPNO 2
PROCNO 1

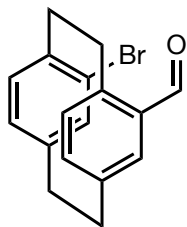
F2 - Acquisition Parameters
Date_ 20160317
Time 13.21
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SFO1 125.7703643 MHz

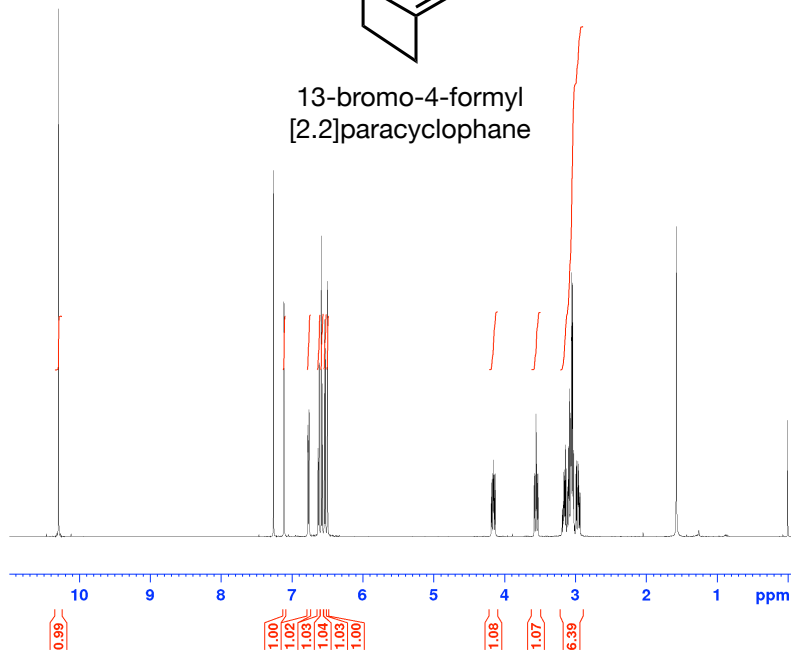
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
EL2W 12.10000038 W
EL12W 0.13988955 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577717 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

13-25 CHO, Br



13-bromo-4-formyl
[2.2]paracyclophane



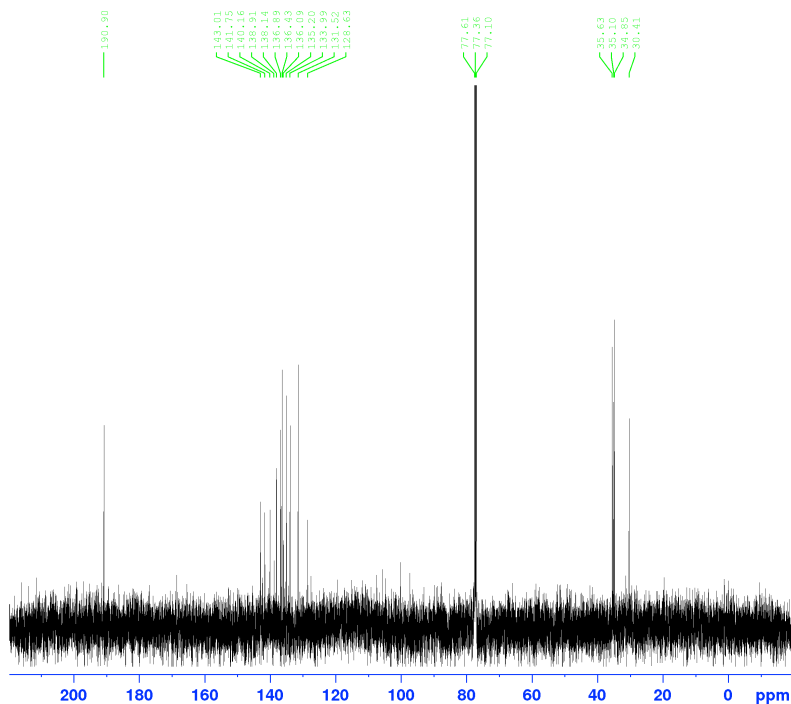
```
Current Data Parameters
NAME      kj-13-25
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20140709
Time      9.50
INSTRUM   spect
PROBHD    5 mm PAQXI 1H/
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         16
DS         2
SWH        10330.578 Hz
FIDRES     0.157632 Hz
AQ         3.1719425 sec
RG         281
DW         48.400 usec
DE         6.50 usec
TE         298.2 K
D1         1.00000000 sec
D10        1

===== CHANNEL f1 =====
NUC1       1H
P1         8.60 usec
PL1        4.00 dB
PL1W       12.10000038 W
SFO1       500.1330885 MHz

F2 - Processing parameters
SI         32768
SF         500.130133 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
```

13-25 CHO, Br



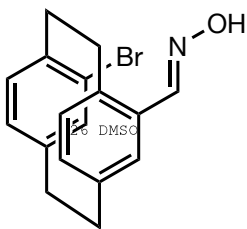
```
Current Data Parameters
NAME      kj-13-25
EXPNO     2
PROCNO    1

F2 - Acquisition Parameters
Date_     20140709
Time      9.55
INSTRUM   spect
PROBHD    5 mm PAQXI 1H/
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         157
DS         4
SWH        30030.029 Hz
FIDRES     0.458222 Hz
AQ         1.0911744 sec
RG         114
DW         16.650 usec
DE         6.50 usec
TE         298.2 K
D1         2.00000000 sec
D11        0.03000000 sec
D10        1

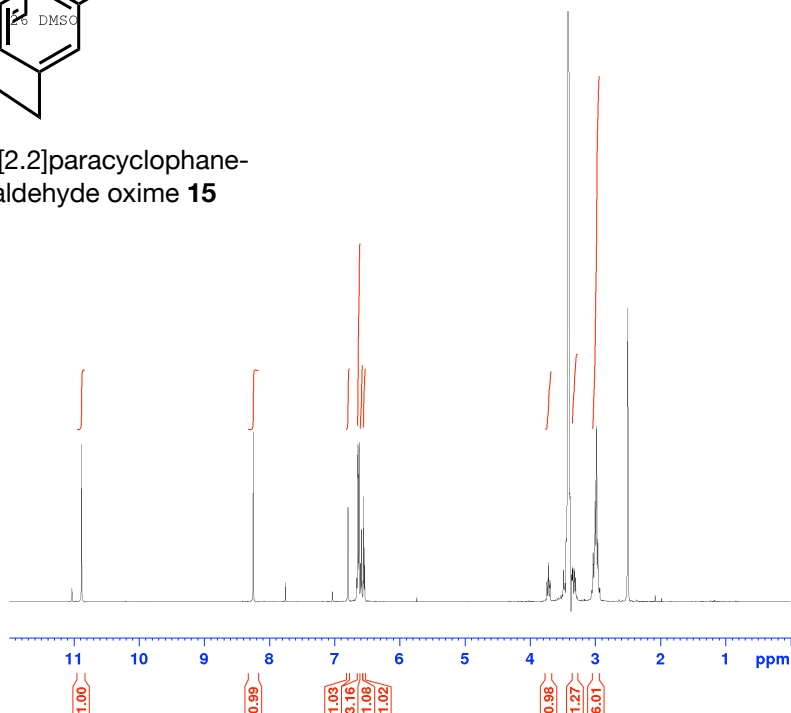
===== CHANNEL f1 =====
NUC1       13C
P1         12.00 usec
PL1        -3.50 dB
PL1W       154.08152771 W
SFO1       125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     80.00 usec
PL2        4.00 dB
PL12       23.37 dB
PL13       25.00 dB
PL2W       12.10000038 W
PL12W      0.13988955 W
PL13W      0.09611372 W
SFO2       500.1320005 MHz

F2 - Processing parameters
SI         32768
SF         125.7577475 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```



13-bromo[2.2]paracyclophane-4-carbaldehyde oxime **15**



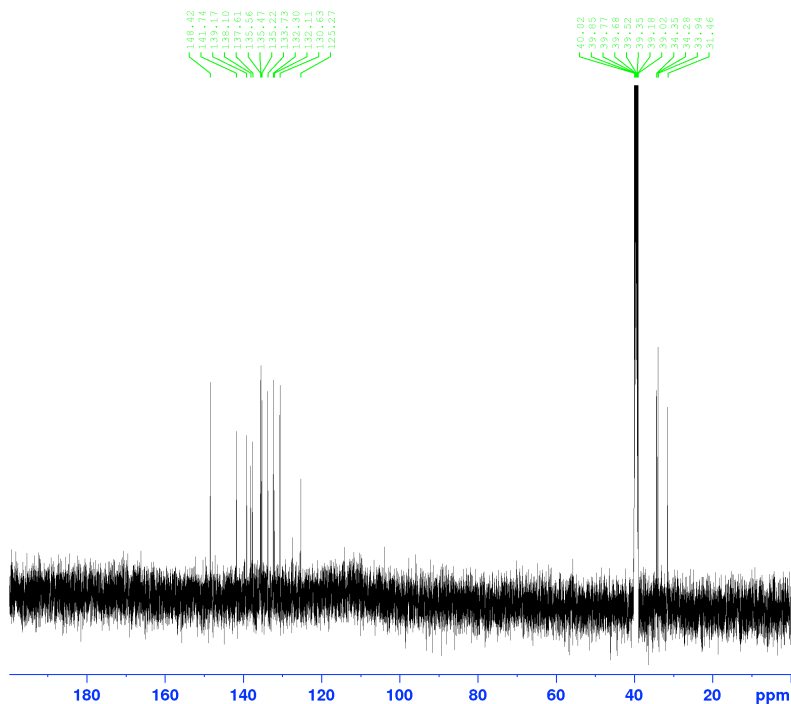
Current Data Parameters
NAME kj-13-26 DMSO
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140723
Time 10.58
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 40.3
DW 48.400 usec
DE 6.30 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300048 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

26 DMSO



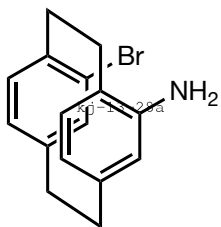
Current Data Parameters
NAME kj-13-26 DMSO
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140723
Time 11.04
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 204
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

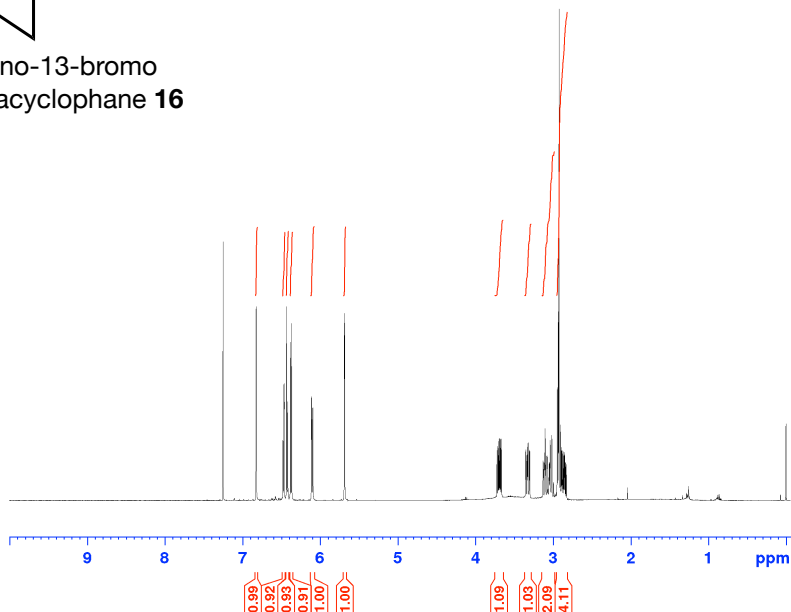
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SFO1 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL2W 12.10000038 W
PL12W 0.13989355 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7578389 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



4-amino-13-bromo
[2.2]paracyclophane **16**



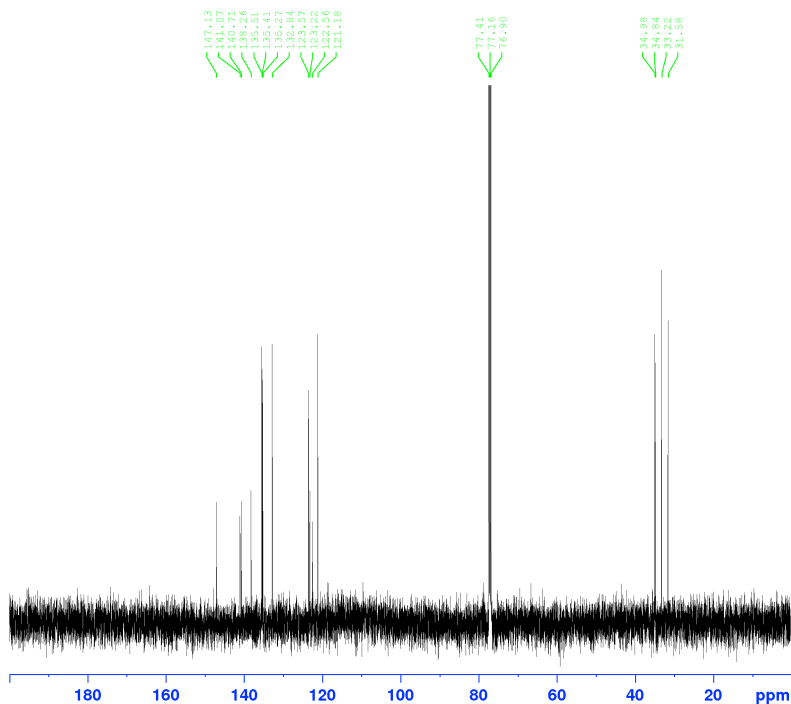
Current Data Parameters
NAME KJ-13-28a
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140717
Time 14.26
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.576 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 128
DW 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PLW1 12.10000038 W
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 65536
SF 500.1300162 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-28a



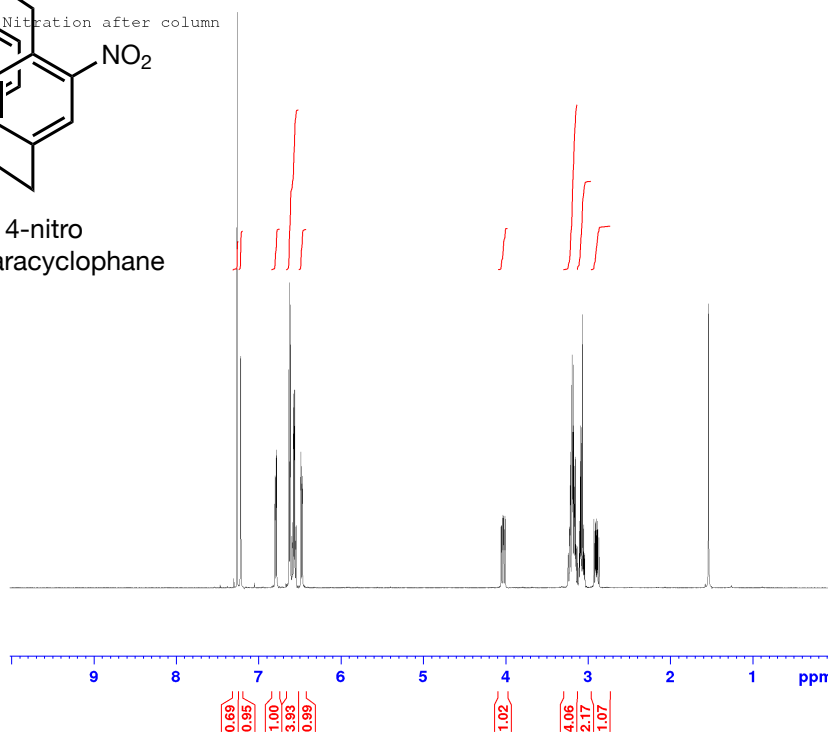
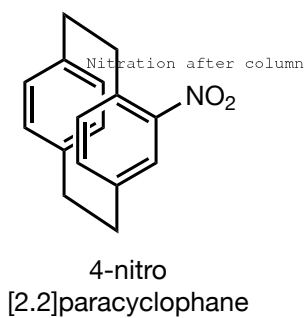
Current Data Parameters
NAME KJ-13-28a
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140717
Time 14.39
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 148
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 181
DW 16.650 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PLW1 154.08000183 W
SFO1 125.7703637 MHz

===== CHANNEL f2 =====
CPDPRG[2] waltz16
NUC2 1H
PCPD2 80.00 usec
PLW2 12.10000038 W
PLW12 0.13982999 W
PLW13 0.08949200 W
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577740 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



Current Data Parameters
NAME djl_X_057
EXPNO 1
PROCNO 1

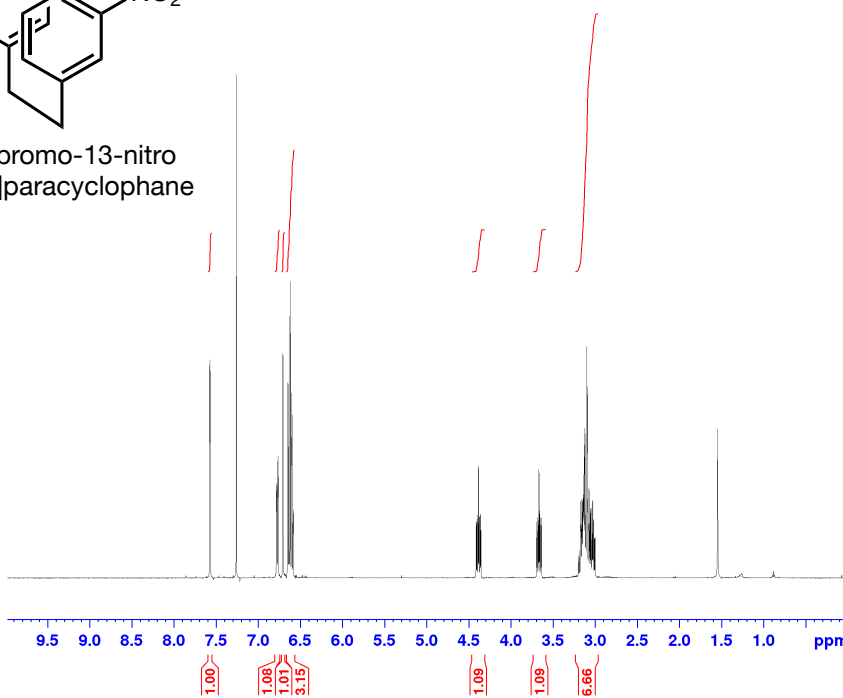
F2 - Acquisition Parameters
Date_ 20160408
Time 9.34
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 256
DM 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300135 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



4-bromo-13-nitro
[2.2]paracyclophane

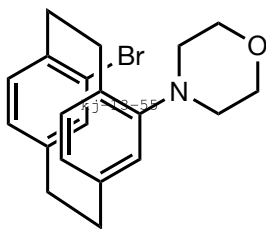


Current Data Parameters
NAME djl_K_017
EXPNO 1
PROCNO 1

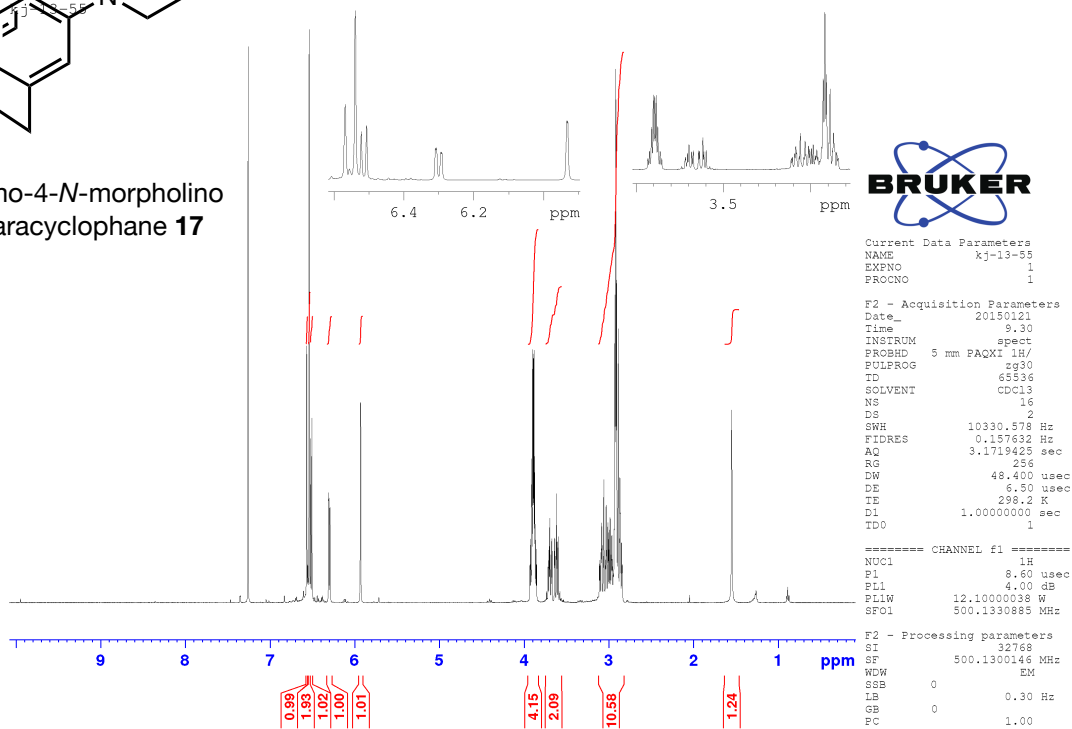
F2 - Acquisition Parameters
Date_ 20141126
Time 11.53
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
ID 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 256
DW 48.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330885 MHz

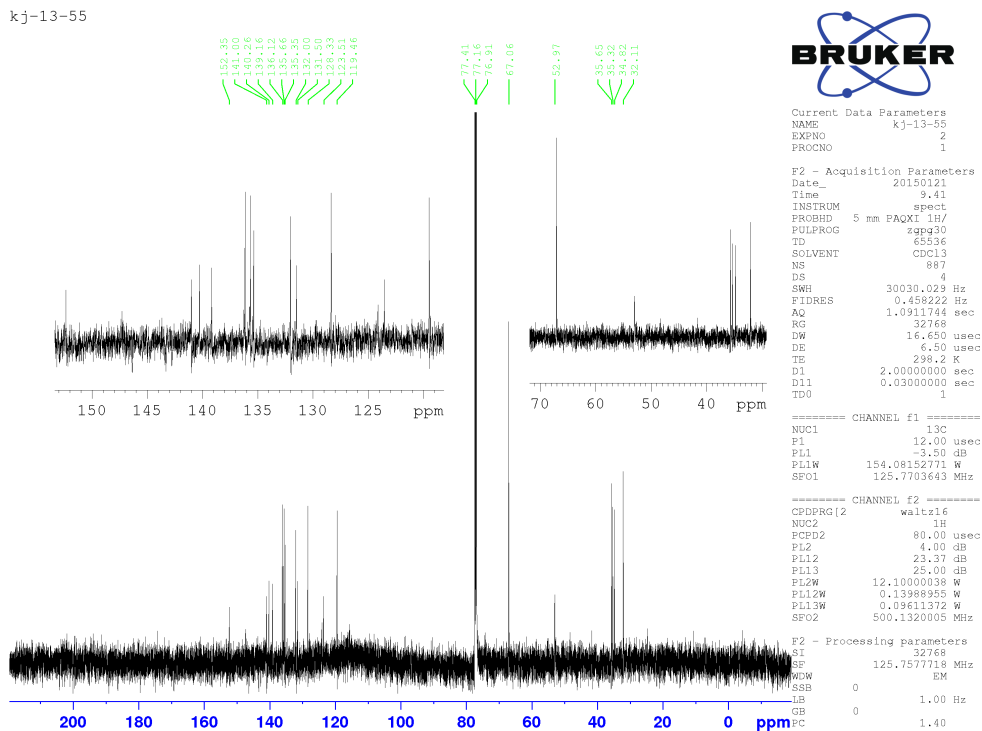
F2 - Processing parameters
SI 32768
SF 500.1300132 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

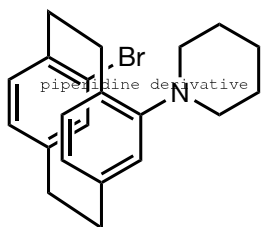


13-bromo-4-N-morpholino
[2.2]paracyclophane **17**

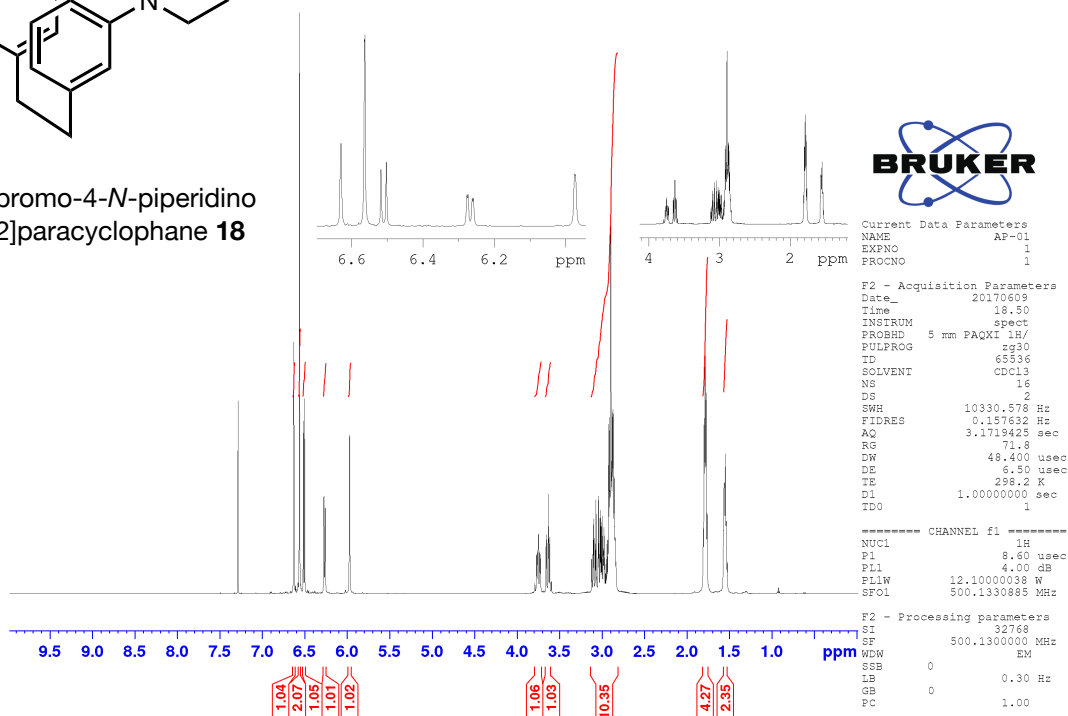


kj-13-55

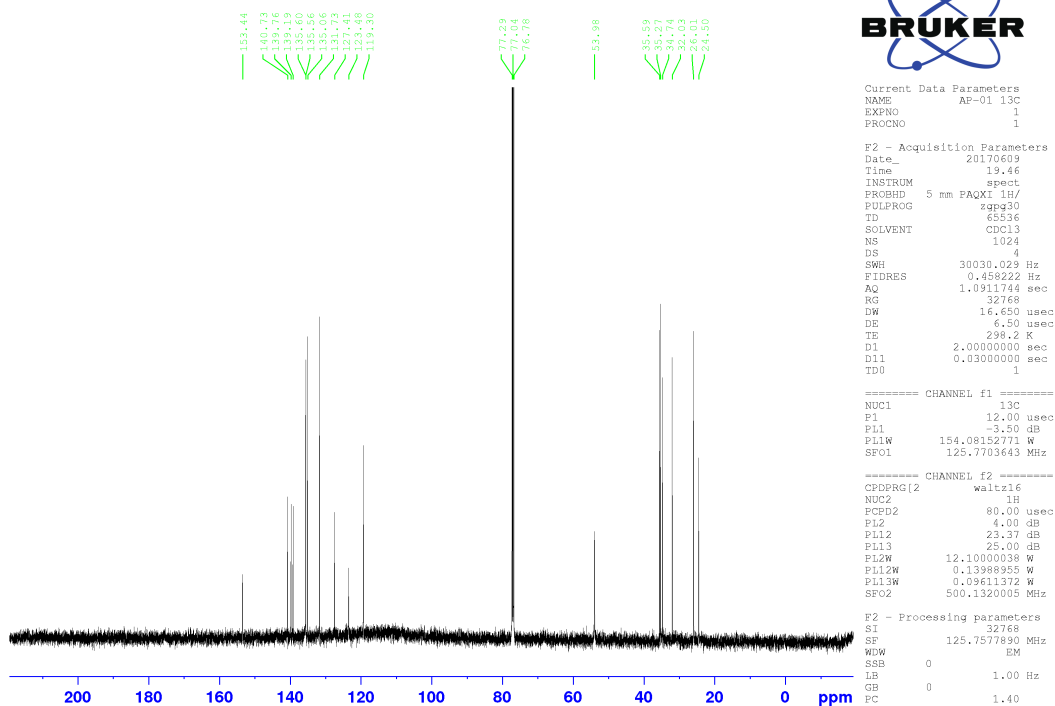


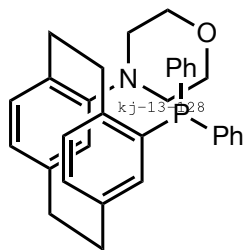


13-bromo-4-N-piperidino
[2.2]paracyclophane **18**

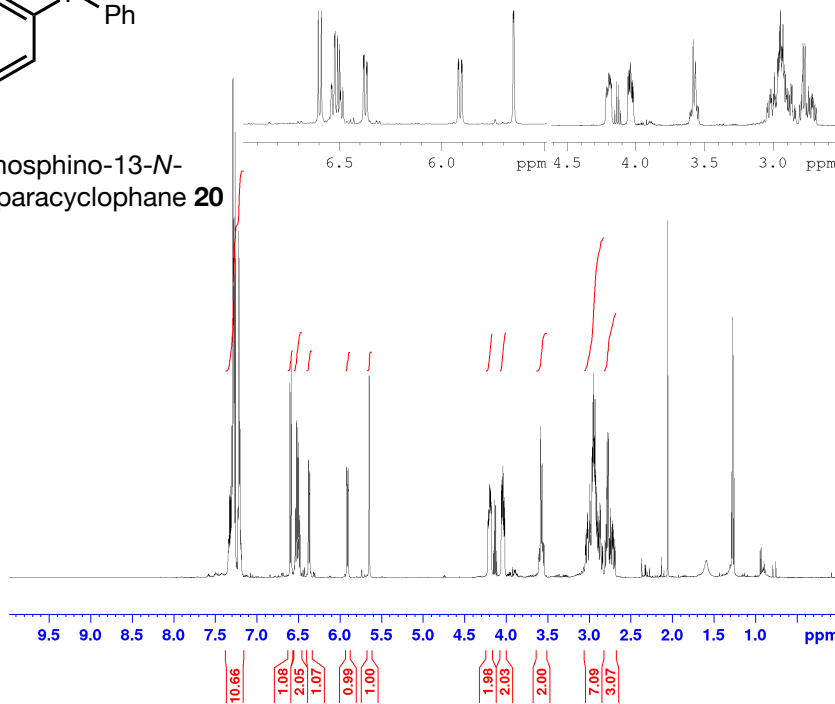


Piperidine derivative





4-diphenylphosphino-13-N-morpholino[2.2]paracyclophane **20**



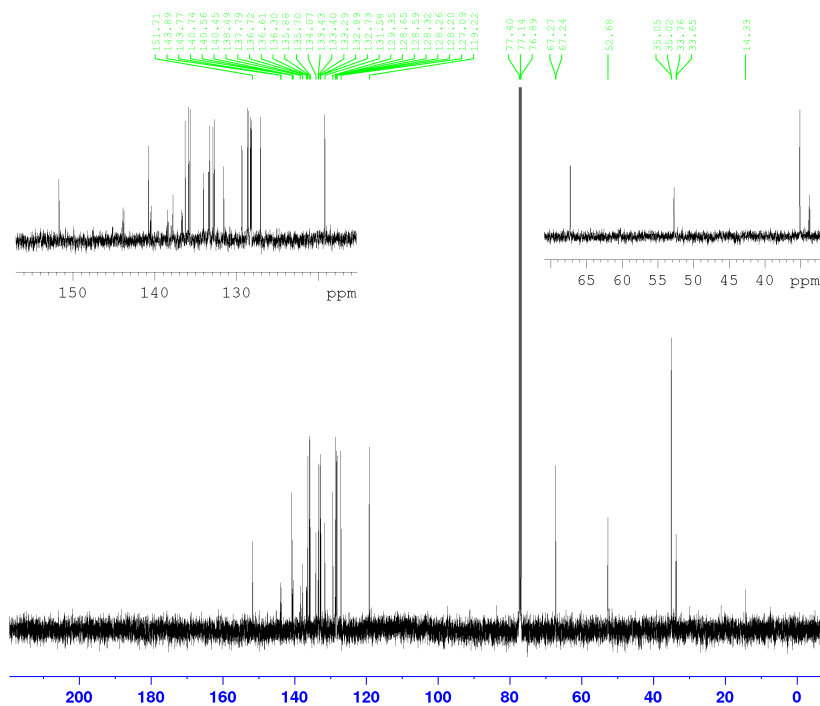
Current Data Parameters
NAME kj-13-128
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20150804
Time 12.53
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 71.8
DW 48.400 usec
DE 6.50 usec
TE 297.9 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.1000038 W
SF01 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300133 MHz
WCH EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-128



Current Data Parameters
NAME kj-13-128
EXPNO 2
PROCNO 1

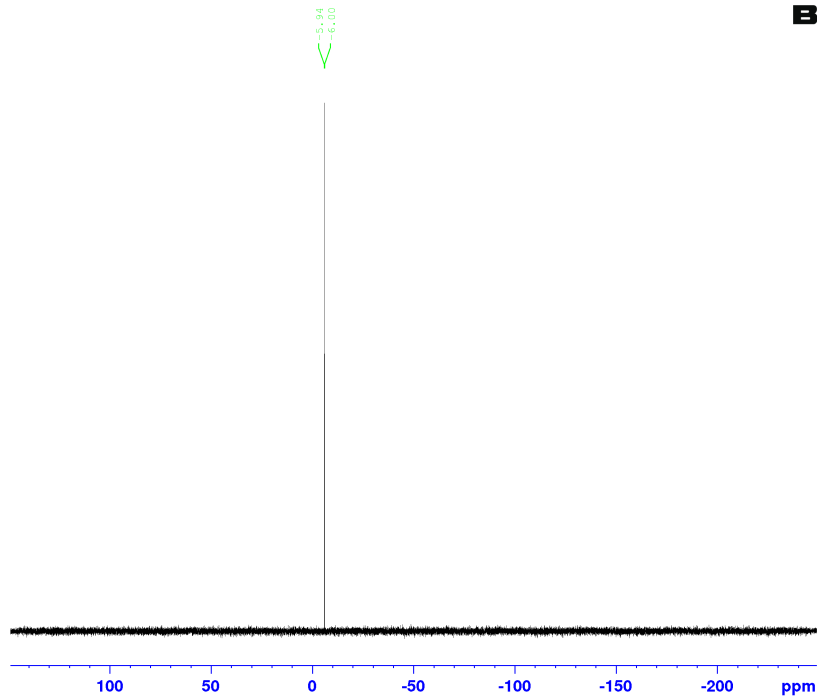
F2 - Acquisition Parameters
Date_ 20150804
Time 13.06
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 403
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.3 K
D1 2.0000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SF01 125.7703643 MHz

===== CHANNEL f2 =====
CPDPRG[2] waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL2W 12.1000038 W
PL12W 0.1398955 W
PL13W 0.09611372 W
SF02 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.7577762 MHz
WCH EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

kj-13-128



```
Current Data Parameters
NAME      kj-13-128
EXPNO     3
PROCNO    1

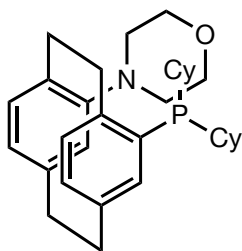
F2 - Acquisition Parameters
Date_     20150804
Time      13.19
INSTRUM   spect
PROBHD    5 mm PAQXI 1H/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS         12
DS         4
SWH        80645.164 Hz
FIDRES     1.230548 Hz
AQ         0.4063232 sec
RG         20642.5
DW         6.200 usec
DE         6.50 usec
TE         298.2 K
D1         2.00000000 sec
D11        0.03000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       31P
P1         20.00 usec
PL1        -2.40 dB
PL1W       131.39126587 W
SFO1       202.4462122 MHz

===== CHANNEL f2 =====
CPDPRG[2] waltz16
NUC2       1H
PCPD2      80.00 usec
PL2        4.00 dB
PL12       23.37 dB
PL13       25.00 dB
PL2W       12.10000038 W
PL12W      0.13968955 W
PL13W      0.09611372 W
SFO2       500.1320005 MHz

F2 - Processing parameters
SI         32768
SF         202.4563350 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
```

kj-13-130 f3,2



4-dicyclohexylphosphino-13-N-morpholino[2.2]paracyclophane **21**

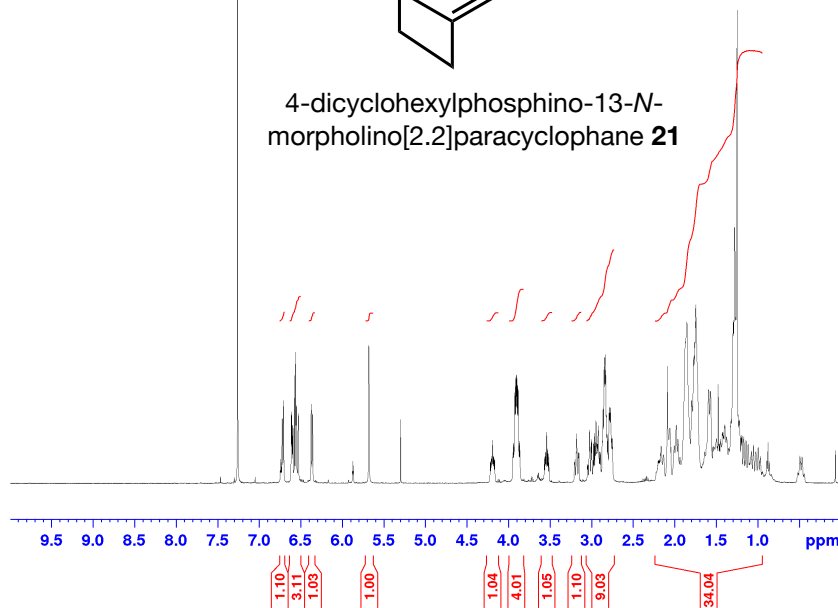


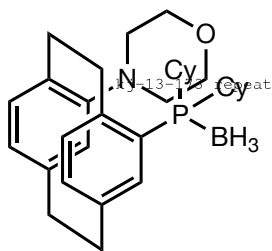
Current Data Parameters
NAME kj-13-130 f3,2
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20150709
Time 9.53
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 114
DW 48.400 usec
DE 6.50 usec
TE 293.5 K
D1 1.00000000 sec
TD0 1

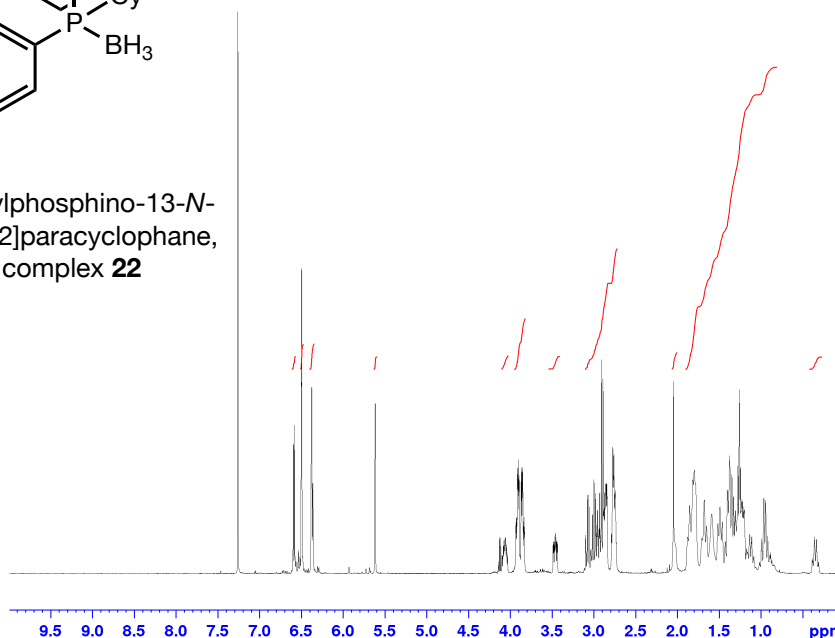
===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.10000038 W
SFO1 500.1330885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300133 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
FC 1.00



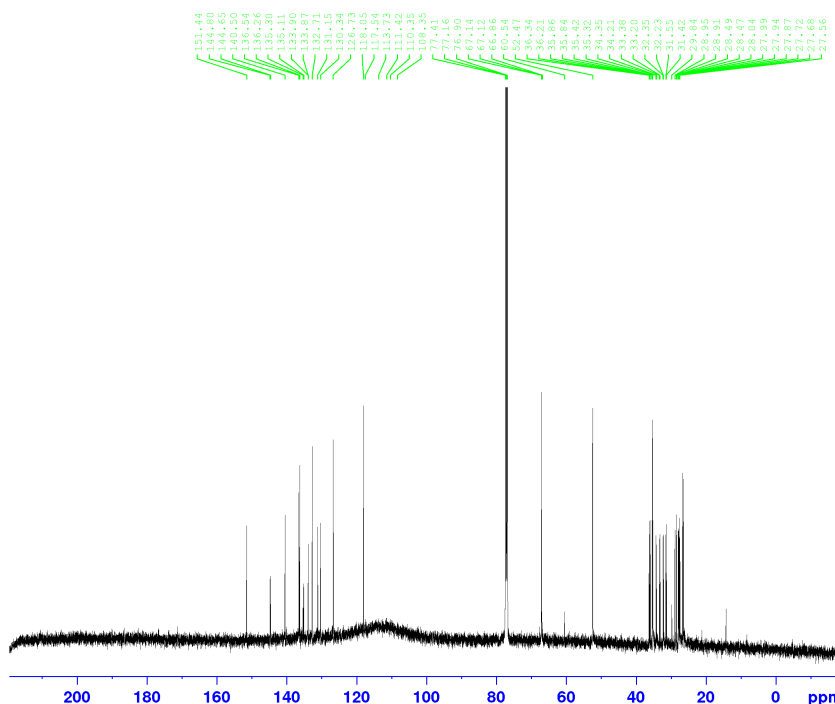


4-dicyclohexylphosphino-13-N-morpholino[2.2]paracyclophane, borane complex **22**



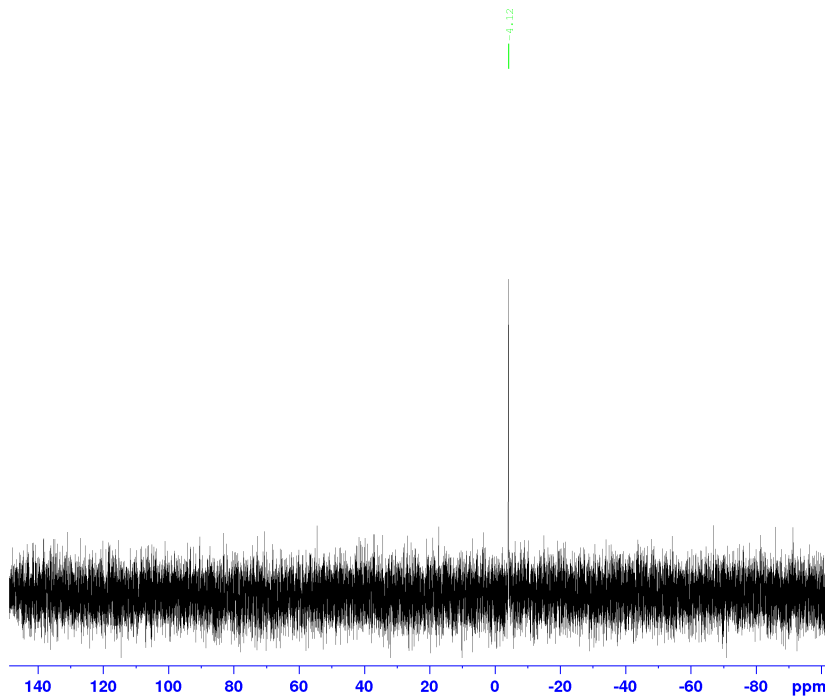
Current Data Parameters
NAME kj-13-173 repeat
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20151027
Time 16.00
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719425 sec
RG 114
DW 48.400 usec
DE 6.50 usec
TE 298.4 K
D1 1.00000000 sec
TD0 1
===== CHANNEL f1 =====
NUC1 1H
P1 8.60 usec
PL1 4.00 dB
PL1W 12.1000038 W
SFO1 500.1330885 MHz
F2 - Processing parameters
SI 32768
SF 500.1300132 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

kj-13-173 repeat



Current Data Parameters
NAME kj-13-173 repeat
EXPNO 2
PROCNO 1
F2 - Acquisition Parameters
Date_ 20151028
Time 1.00
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 10240
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0911744 sec
RG 32768
DW 16.650 usec
DE 6.50 usec
TE 298.5 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
===== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 -3.50 dB
PL1W 154.08152771 W
SFO1 125.7703643 MHz
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL1W 12.1000038 W
PL12W 0.13398955 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz
F2 - Processing parameters
SI 32768
SF 125.7577718 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

kj-13-173 repeat



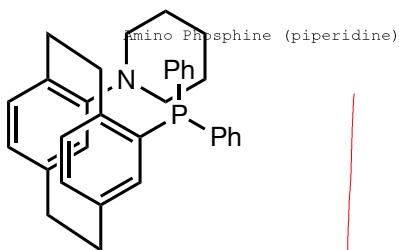
Current Data Parameters
NAME kj-13-173 repeat
EXPNO 3
PROCNO 1

F2 - Acquisition Parameters
Date_ 20151028
Time 13.49
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 16
DS 4
SWH 80645.164 Hz
FIDRES 1.230548 Hz
AQ 0.4063232 sec
RG 20642.5
DW 6.200 usec
DE 6.50 usec
TE 297.9 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

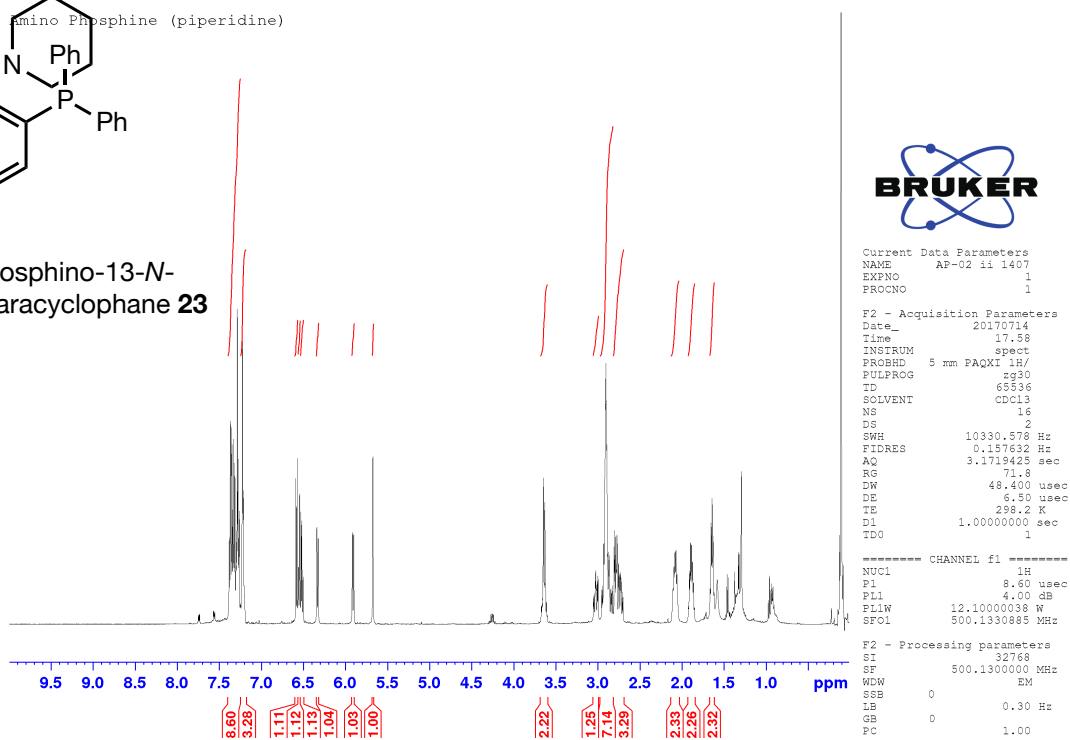
===== CHANNEL f1 =====
NUC1 31P
P1 20.00 usec
PL1 -2.40 dB
PL1W 131.39126587 W
SFO1 202.4462122 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL2W 12.10000038 W
PL12W 0.13988955 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz

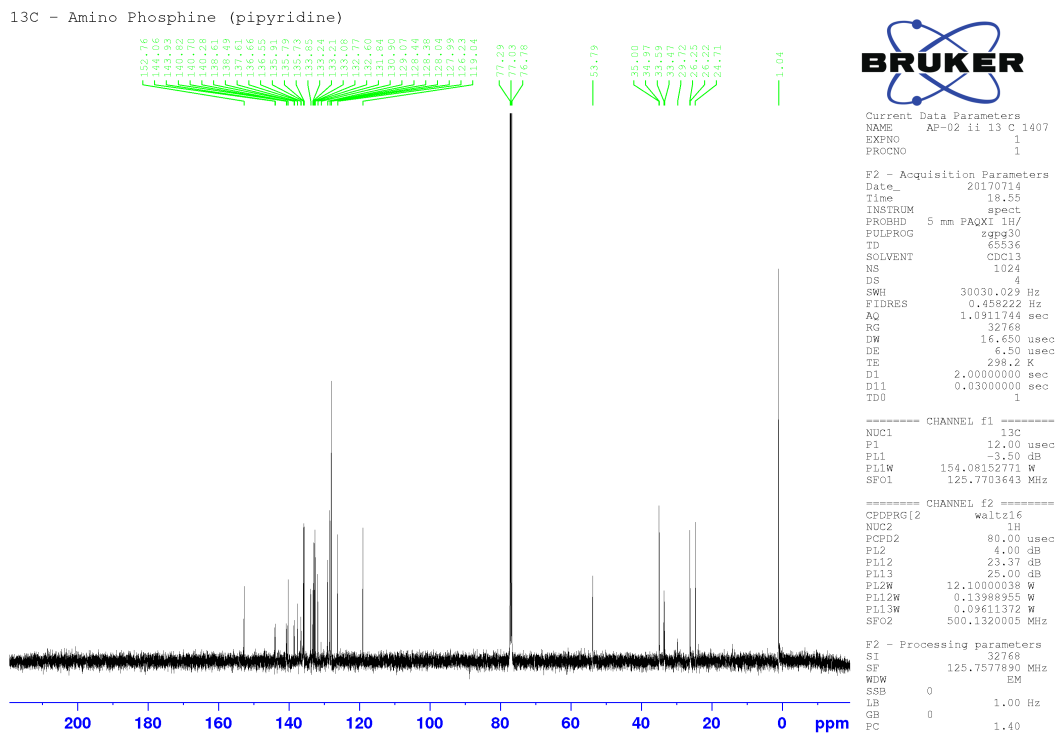
F2 - Processing parameters
SI 32768
SF 202.4563350 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



4-diphenylphosphino-13-N-piperidino[2.2]paracyclophane **23**



plasticizer contaminant



31P - Phosphine Formation



Current Data Parameters
NAME AP-02 ii 31P 1407
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170614
Time 19.04
INSTRUM spect
PROBHD 5 mm PAQXI 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 64
DS 4
SWH 80645.164 Hz
FIDRES 1.230548 Hz
AQ 0.4063232 sec
RG 20642.5
DW 6.200 usec
DE 6.50 usec
TE 298.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 31P
P1 20.00 usec
PL1 -2.40 dB
PL1W 131.39126587 W
SFO1 202.4462122 MHz

===== CHANNEL f2 =====
CDEBERG12 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 4.00 dB
PL12 23.37 dB
PL13 25.00 dB
PL2W 12.10000038 W
PL12W 0.13988955 W
PL13W 0.09611372 W
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 202.4563350 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

