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SUPPLEMENTARY MATERIAL

Synthesis, photophysical and electrochemical properties of dendrimers with (*S*)-BINOL core and benzothiazole surface unit

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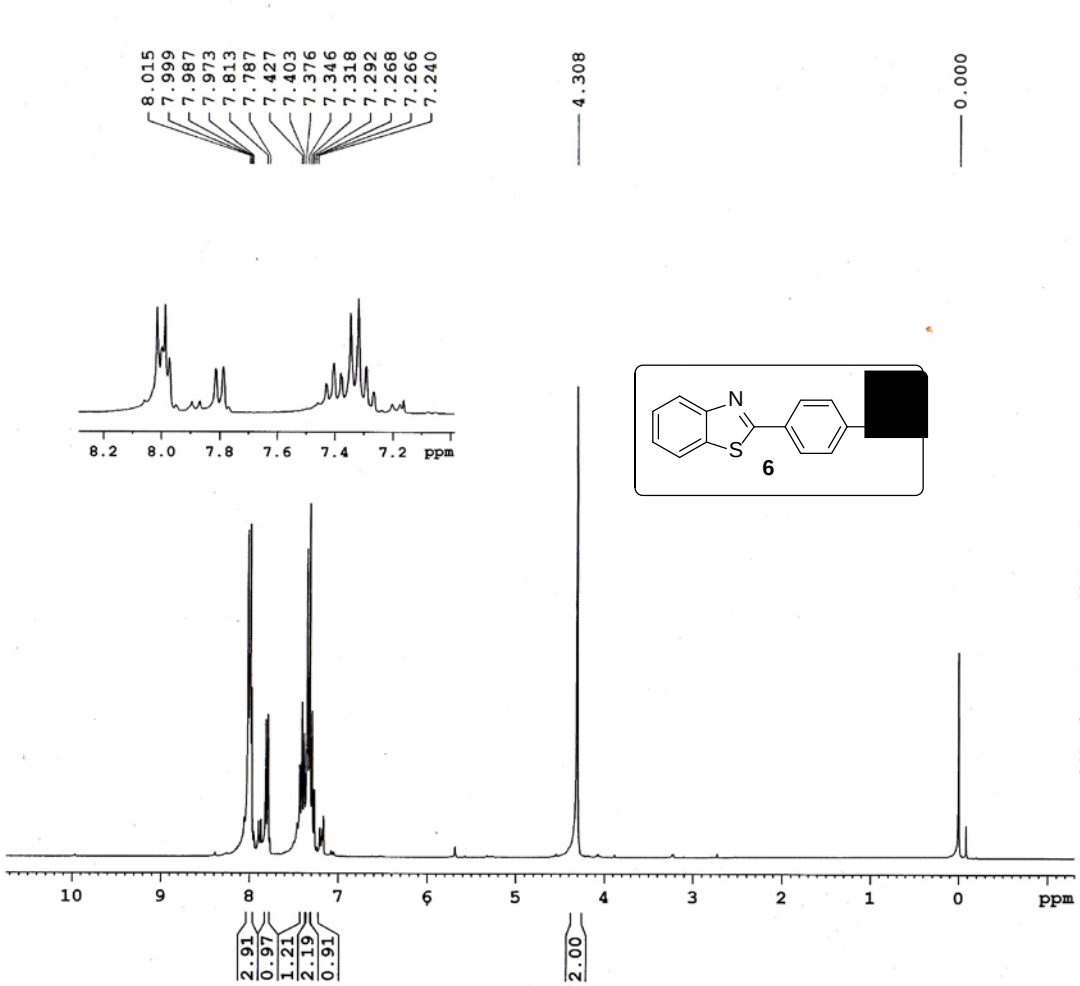
Abbreviations

$AgNO_3$	**:**	**Silver nitrate**
CV	**:**	**Cyclic Voltammetry**
$CuSO_4.5H_2O$	**:**	**Copper sulphate pentahydrate**
$CHCl_3$	**:**	**Chloroform**
DMF	**:**	**N,N-Dimethyl formamide**
DSSC	**:**	**Dye-sensitized solar cell**
ESI-Mass	**:**	**Electrospray ionization**
K_2CO_3	**:**	**Potassium carbonate**
NMR	**:**	**Nuclear Magnetic Resonance**
NaAsc	**:**	**Sodium Ascorbate**
NaN_3	**:**	**Sodium azide**
Na_2SO_4	**:**	**Sodium sulphate**
TBAP	**:**	**Tetrabutylammonium Percholarate**
^tBuOH	**:**	**Tertiary Butanol**
UV	**:**	**Ultraviolet**
$[\alpha]_D^{25}$	**:**	**Specific rotation**

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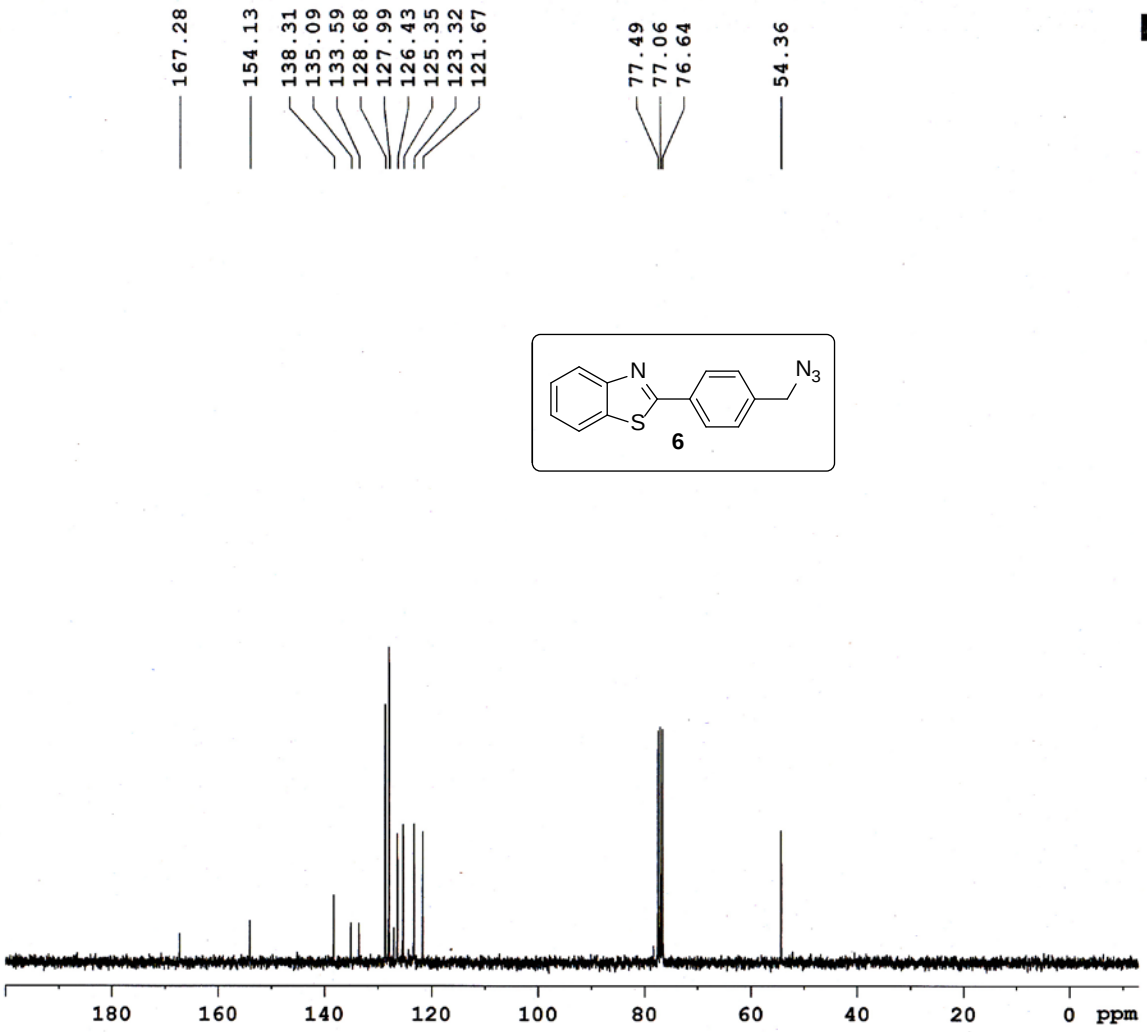
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH               6172.839 Hz
FIDRES            0.094190 Hz
AQ              5.3084660 sec
RG                    71.8
DW                  81.000 use
DE                    6.00 use
TE                   300.0 K
D1             1.00000000 sec
TD0                       1

======== CHANNEL f1 =======
NUC1                     1H
P1                    12.40 use
PL1                    0.00 dB
SFO1           300.1318534 MHz

F2 - Processing parameters
SI                    32768
SF             300.1300349 MHz
WDW                      EM
SSB                       0
LB                     0.30 Hz
GB                        0
```

^{1}H NMR Spectrum ($CDCl_3$, 300 MHz) of the compound 6



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F2 - Acquisition Parameters
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Time 15.16
INSTRUM spect
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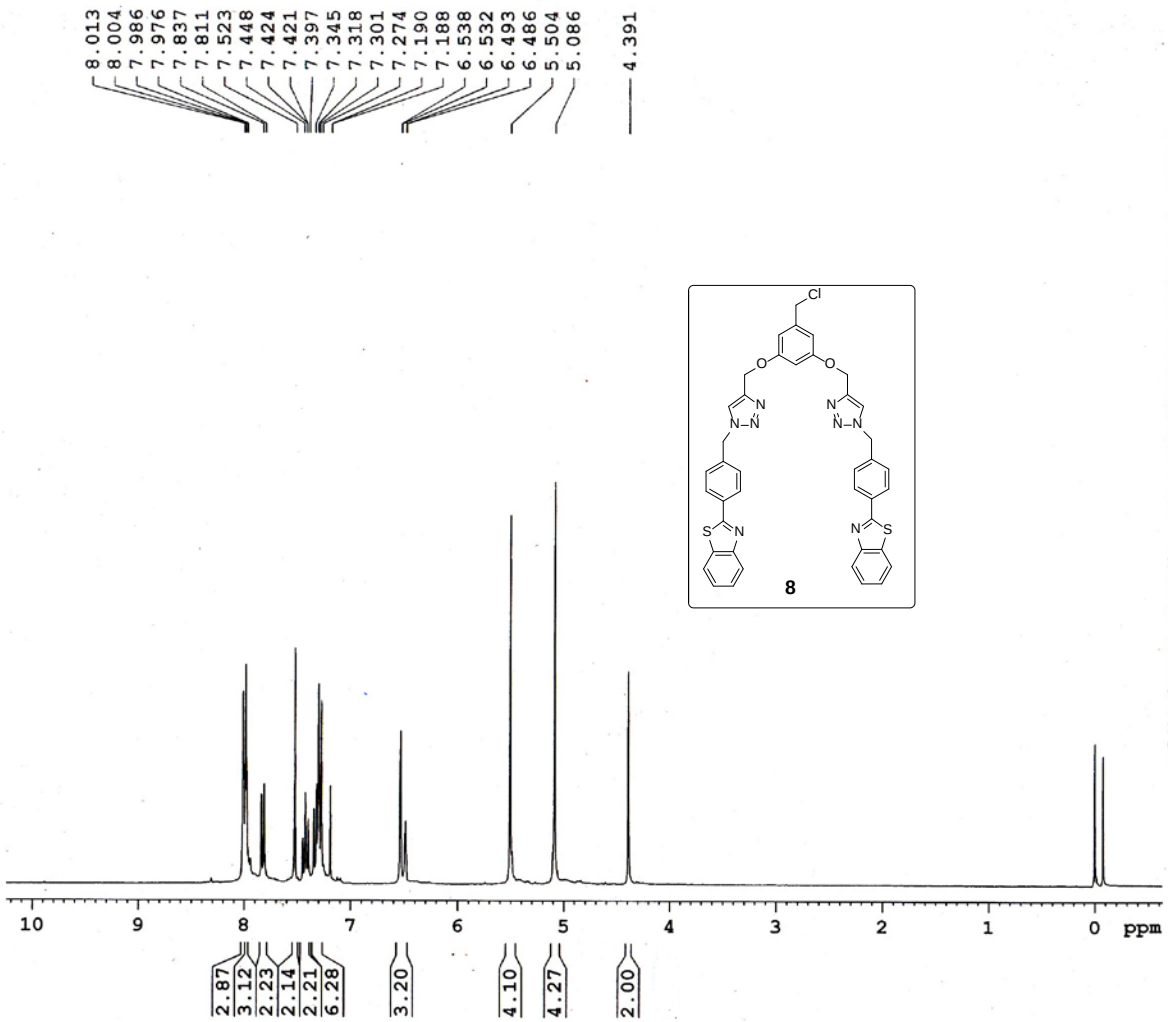
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 120
DS 4
SWH 17985.611 Hz
FIDRES 0.274439 Hz
AQ 1.8219508 sec
RG 724.1
DW 27.800 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1

======== CHANNEL f1 ========
NUC1 13C
P1 8.10 usec
PL1 -2.00 dB
SFO1 75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 0.00 dB
PL12 16.19 dB
PL13 16.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
SI 32768
SF 75.4677490 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

^{13}C NMR Spectrum ($CDCl_3$, 75 MHz) of the compound 6

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EXPNO                      1
PROCNO                     1

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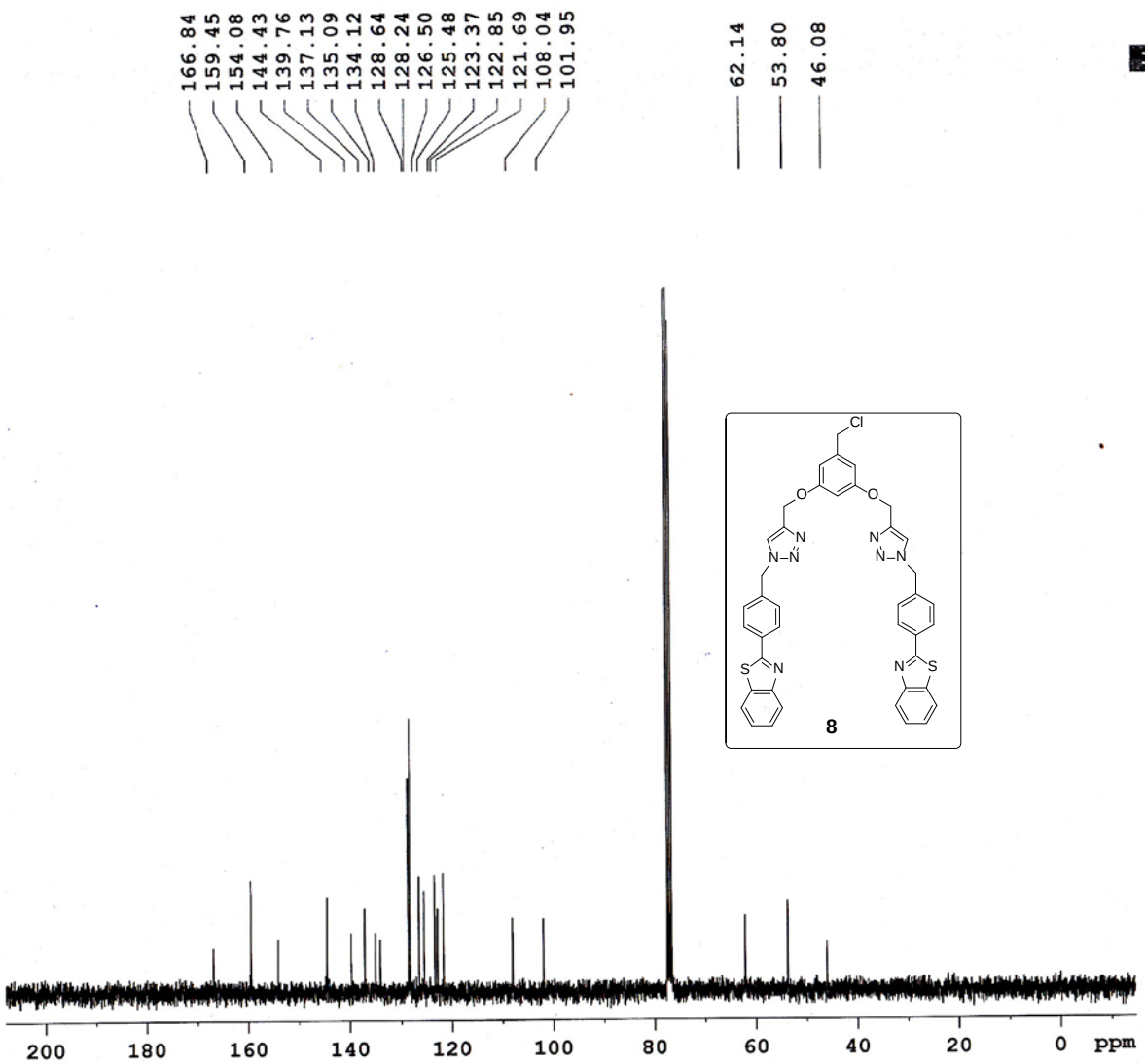
Time                  12.40
INSTRUM               spect
PROBHD    5 mm DUL 13C-1
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH                6172.839 Hz
FIDRES             0.094190 Hz
AQ                5.3084660 sec
RG                    203.2
DW                   81.000 usec
DE                     6.00 usec
TE                    300.0 K
D1               1.00000000 sec
TD0                        1

======== CHANNEL f1 ========
NUC1                      1H
P1                    12.40 usec
PL1                    0.00 dB
SFO1            300.1318534 MHz

F2 - Processing parameters
SI                    32768
SF             300.1300273 MHz
WDW                       EM
SSB                        0
LB                      0.30 Hz
GB                         0
PC                      1.00
```

^{1}H NMR Spectrum ($CDCl_3$, 300 MHz) of the compound 8

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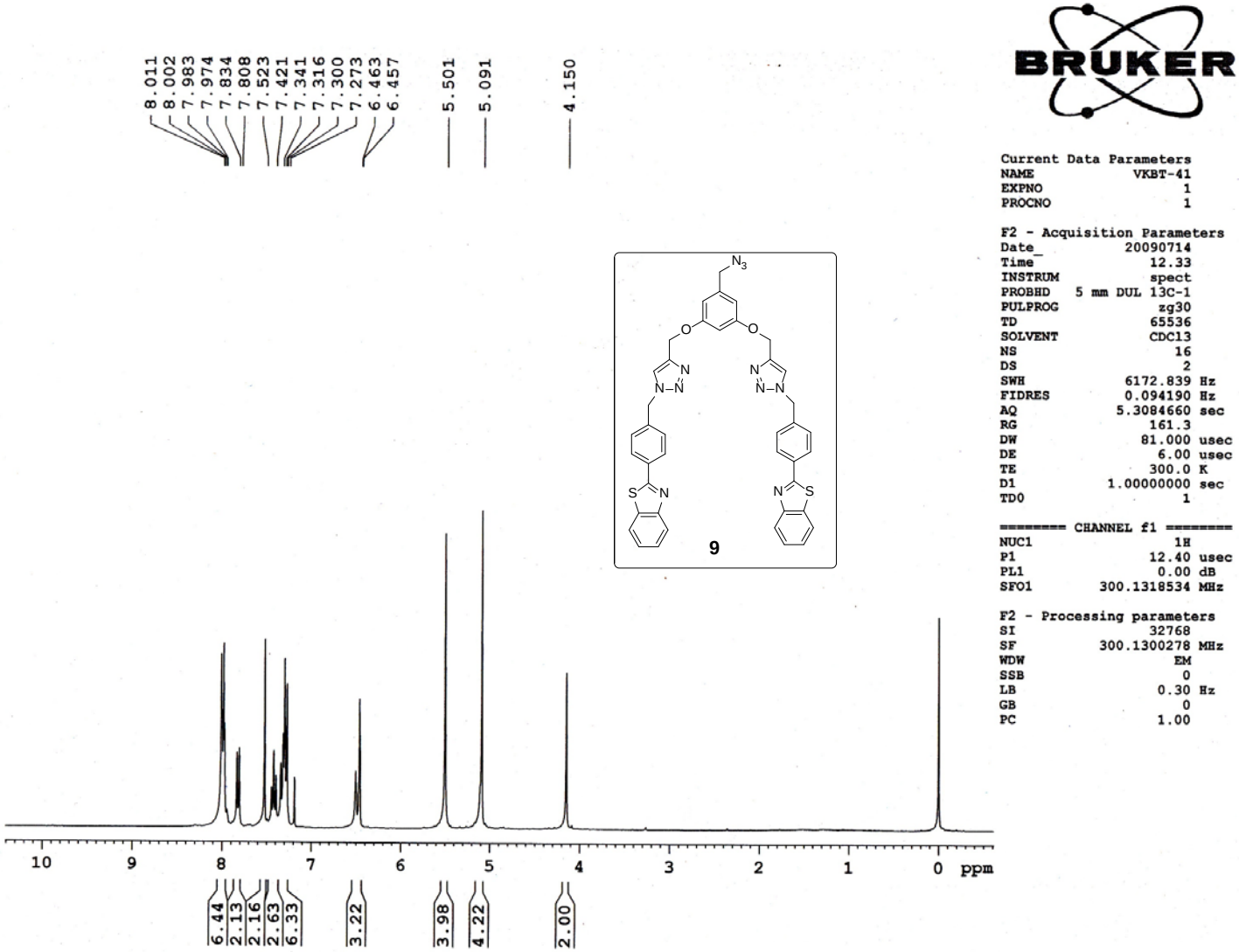
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                     231
DS                       4
SWH              17985.611 Hz
FIDRES            0.274439 Hz
AQ               1.8219508 sec
RG                     362
DW                  27.800 usec
DE                   6.00 usec
TE                  300.0 K
D1             2.00000000 sec
d11            0.03000000 sec
DELTA          1.89999998 sec
TD0                      1

======== CHANNEL f1 ========
NUC1                   13C
P1                    8.10 usec
PL1                  -2.00 dB
SFO1           75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2            waltz16
NUC2                    1H
PCPD2                80.00 usec
PL2                   0.00 dB
PL12                 16.19 dB
PL13                 16.00 dB
SFO2          300.1312005 MHz

F2 - Processing parameters
SI                    32768
SF            75.4677490 MHz
WDW                      EM
SSB                       0
LB                     1.00 Hz
GB                        0
PC                     1.40
```

^{13}C NMR Spectrum ($CDCl_3$, 75 MHz) of the compound 8

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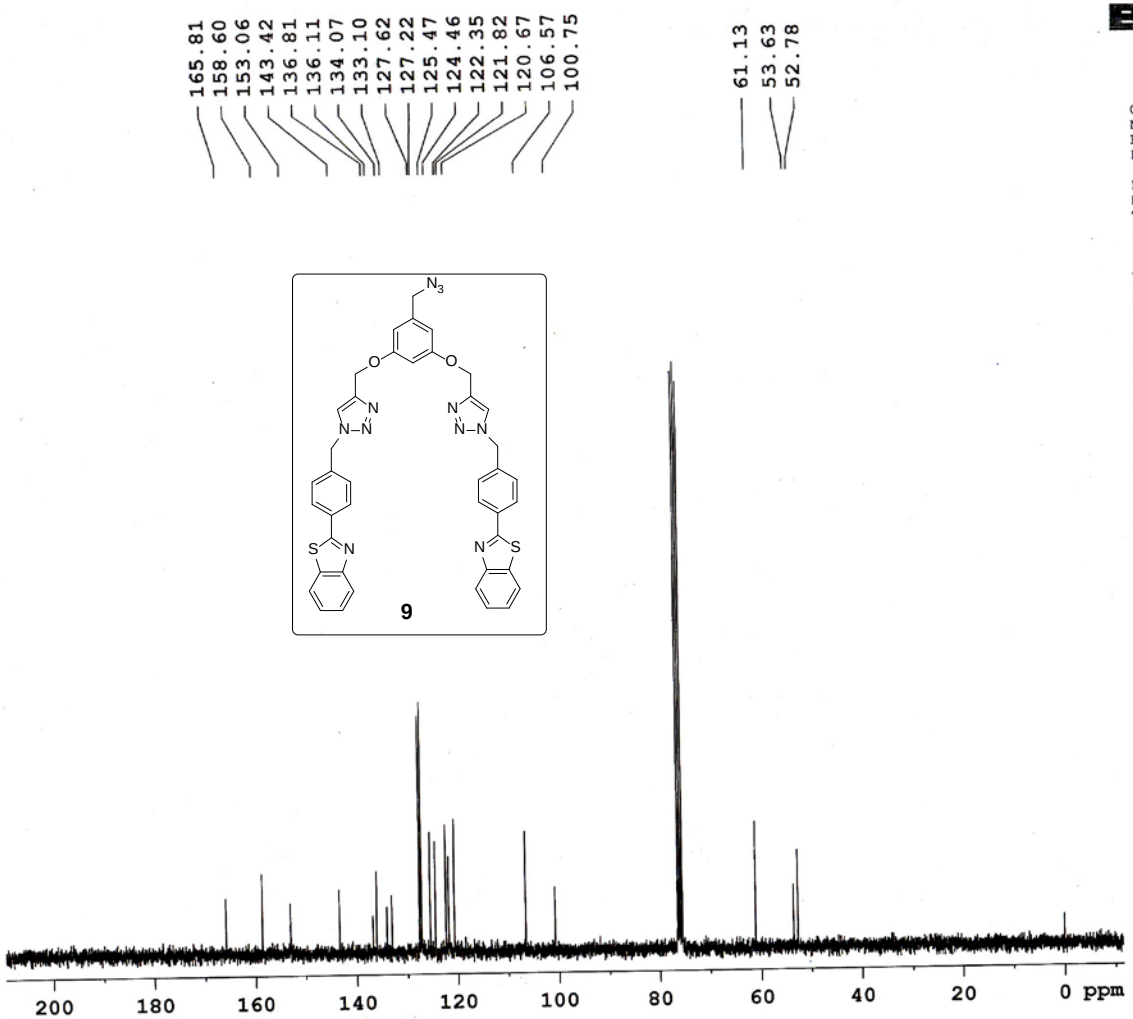
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_            20090714
Time               12.33
INSTRUM            spect
PROBHD   5 mm DUL 13C-1
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    16
DS                     2
SWH            6172.839 Hz
FIDRES         0.094190 Hz
AQ            5.3084660 sec
RG                161.3
DW               81.000 usec
DE                 6.00 usec
TE                300.0 K
D1           1.00000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                  1H
P1                12.40 usec
PL1                0.00 dB
SFO1        300.1318534 MHz

F2 - Processing parameters
SI                32768
SF          300.1300278 MHz
WDW                  EM
SSB                   0
LB                 0.30 Hz
GB                    0
PC                 1.00
```

^{1}H NMR Spectrum ($CDCl_3$, 300 MHz) of the compound 9

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Current Data Parameters
NAME                 VKBT-41
EXPNO                      4
PROCNO                     1

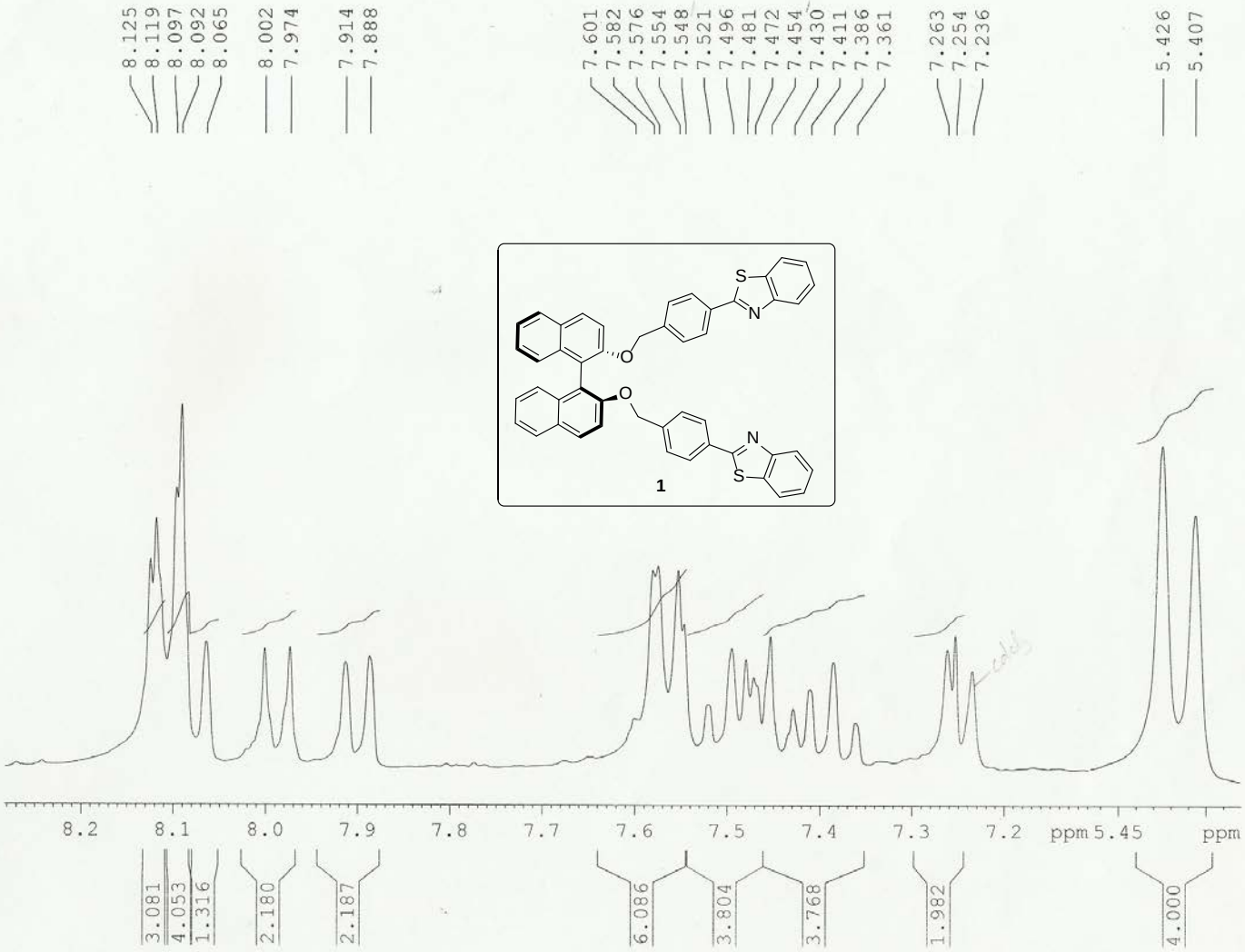
F2 - Acquisition Parameters
Date_               20090714
Time                   15.08
INSTRUM                spect
PROBHD    5 mm DUL 13C-1
PULPROG              zgpg30
TD                    65536
SOLVENT               CDCl3
NS                      235
DS                        4
SWH                17985.611 Hz
FIDRES              0.274439 Hz
AQ                  1.8219508 sec
RG                        362
DW                     27.800 usec
DE                      6.00 usec
TE                     300.0 K
D1                 2.00000000 sec
d11                0.03000000 sec
DELTA              1.89999998 sec
TD0                        1

======== CHANNEL f1 ========
NUC1                      13C
P1                       8.10 usec
PL1                     -2.00 dB
SFO1               75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2                waltz16
NUC2                       1H
PCPD2                   80.00 usec
PL2                      0.00 dB
PL12                    16.19 dB
PL13                    16.00 dB
SFO2              300.1312005 MHz

F2 - Processing parameters
SI                       32768
SF                 75.4678260 MHz
WDW                         EM
SSB                          0
LB                        1.00 Hz
GB                           0
PC                        1.40
```

^{13}C NMR Spectrum ($CDCl_3$, 75 MHz) of the compound 9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8.092
8.065
8.002
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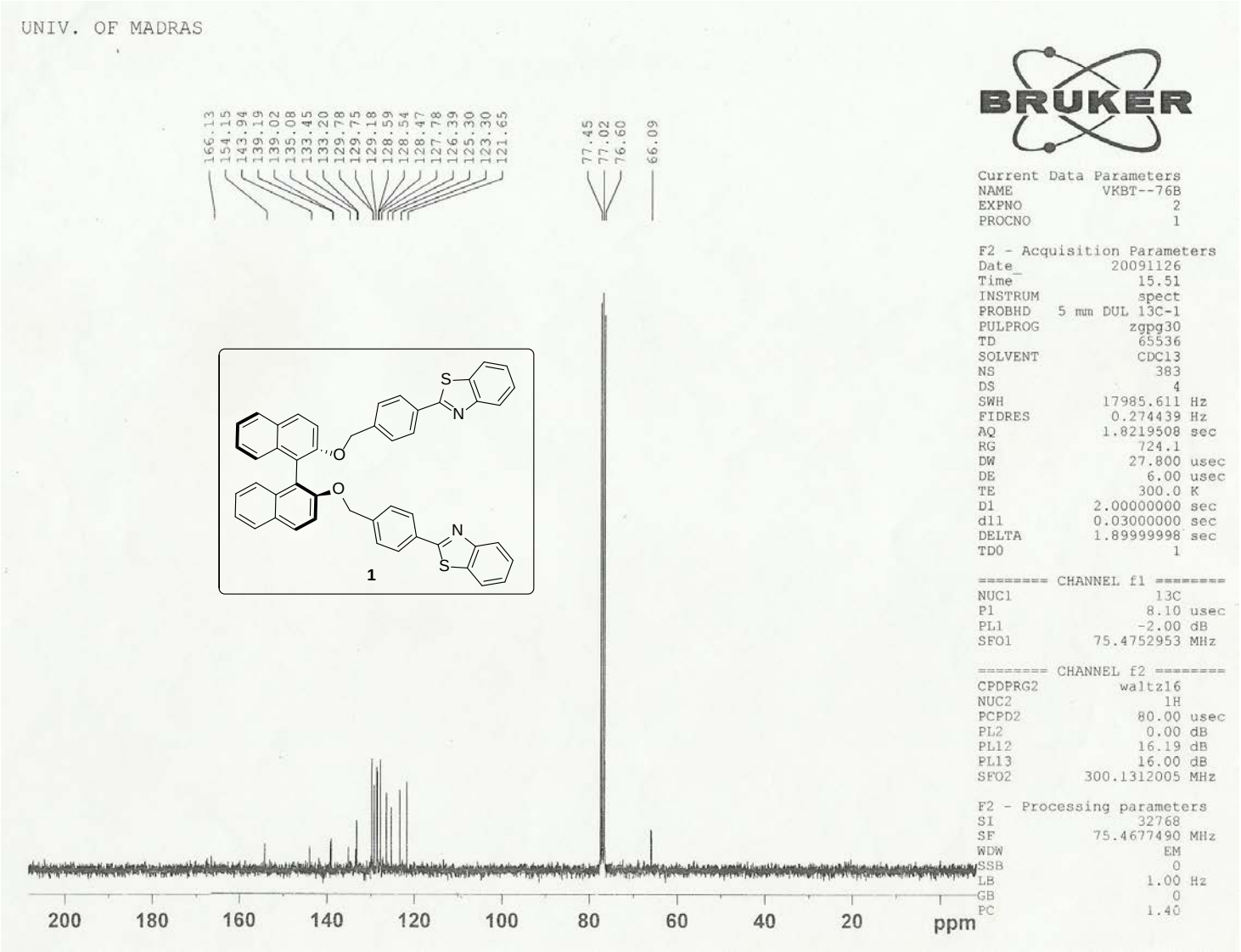
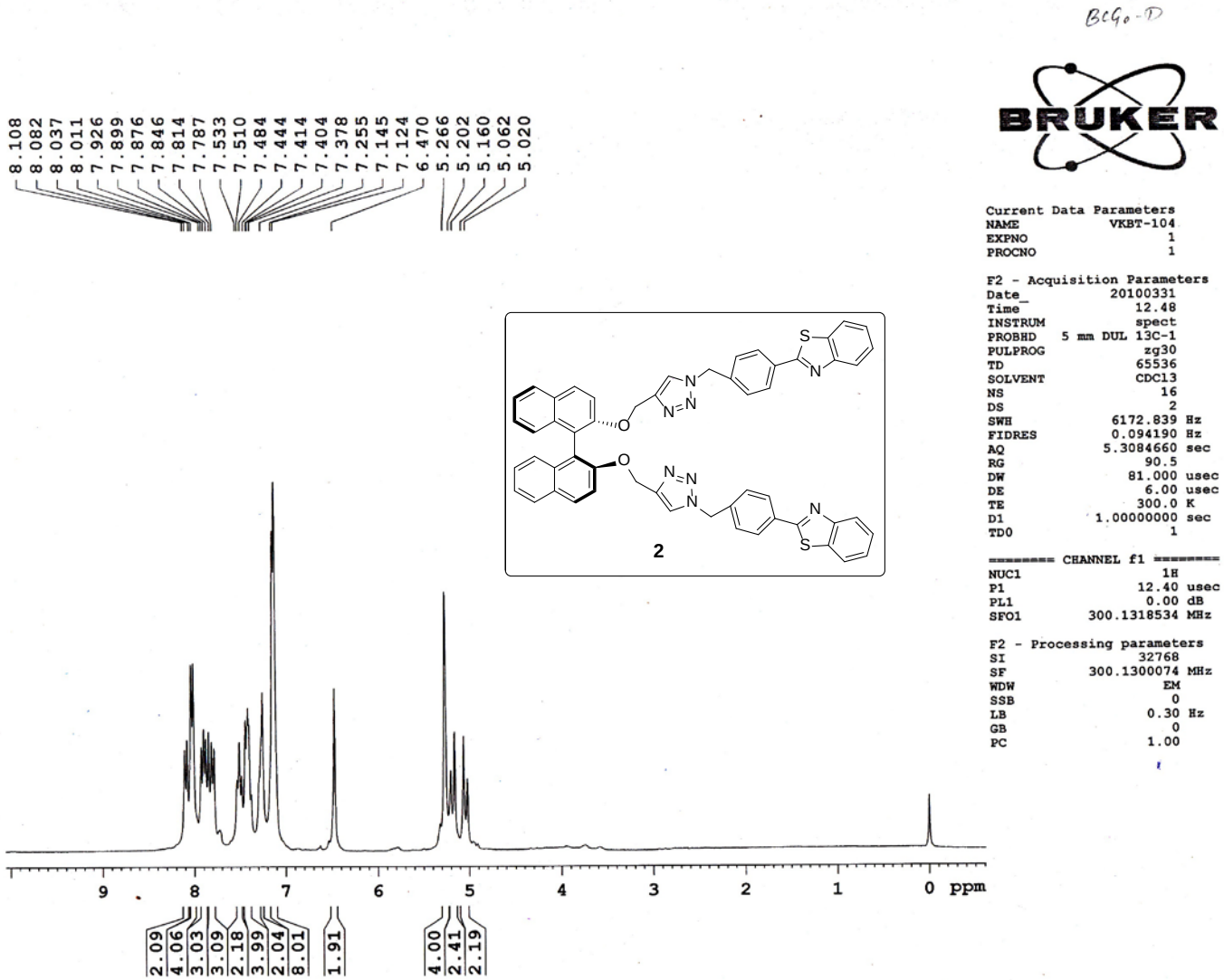
7.888
7.601
7.582
7.576
7.554
7.548
7.521
7.496
7.481
7.472
7.454
7.430
7.411
7.386
7.361
7.263
7.254
7.236
5.426
5.407
S
N
O
O
N
S
1
8.2
8.1
8.0
7.9
7.8
7.7
7.6
7.5
7.4
7.3
7.2
ppm
5.45
ppm
3.081
4.053
1.316
2.180
2.187
6.086
3.804
3.768
1.982
4.000

Expanded ^{1}H NMR Spectrum ($CDCl_3$, 300 MHz) of the dendrimer 1



^{13}C NMR Spectrum ($CDCl_3$, 75 MHz) of the dendrimer 1



BtGo-D

BRUKER

Current Data Parameters
NAME VKBT-104
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20100331
Time 12.48
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6172.839 Hz
FIDRES 0.094190 Hz
AQ 5.3084660 sec
RG 90.5
DW 81.000 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 12.40 usec
PL1 0.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300074 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

^{1}H NMR Spectrum ($CDCl_3$, 300 MHz) of the dendrimer 2

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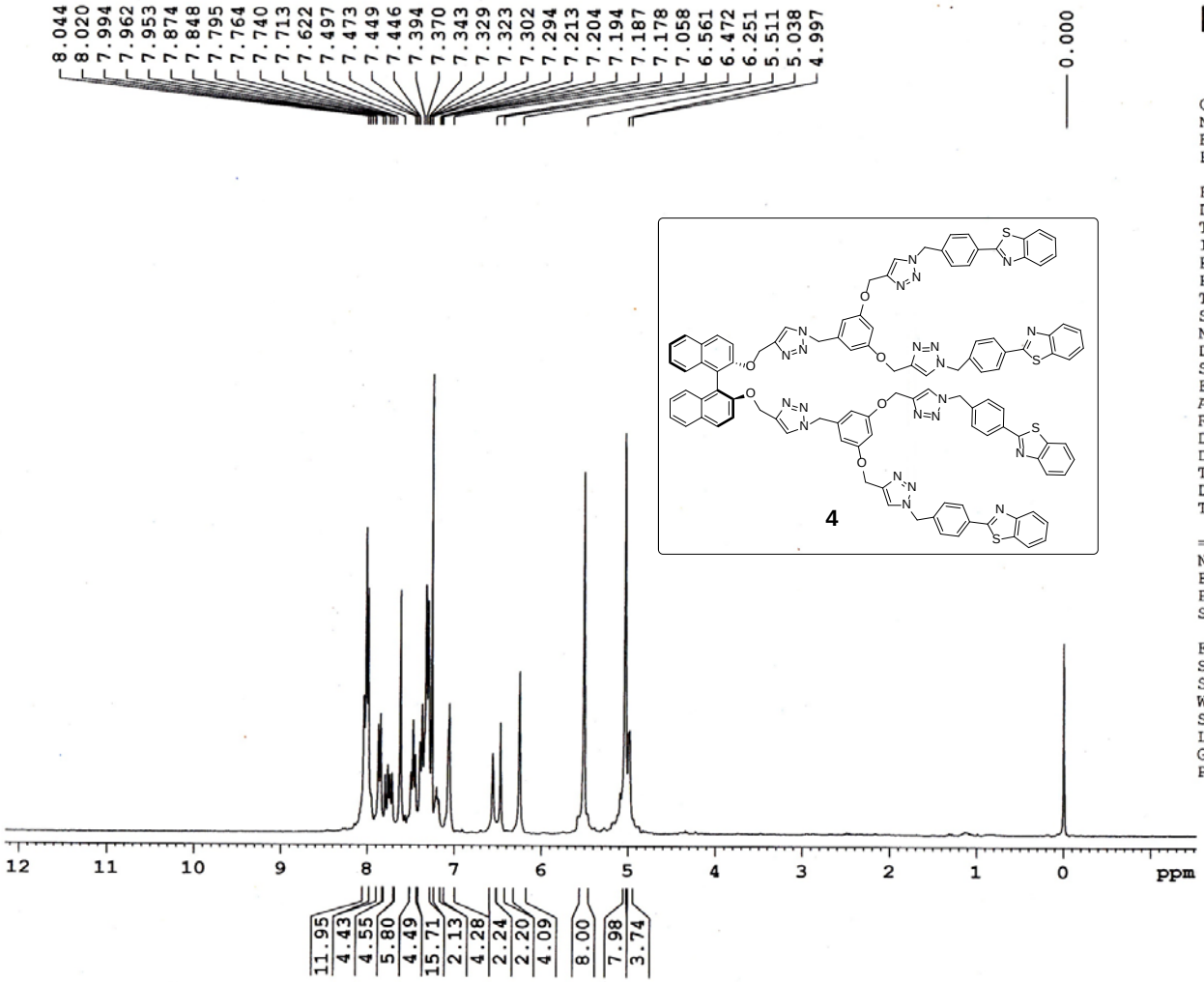


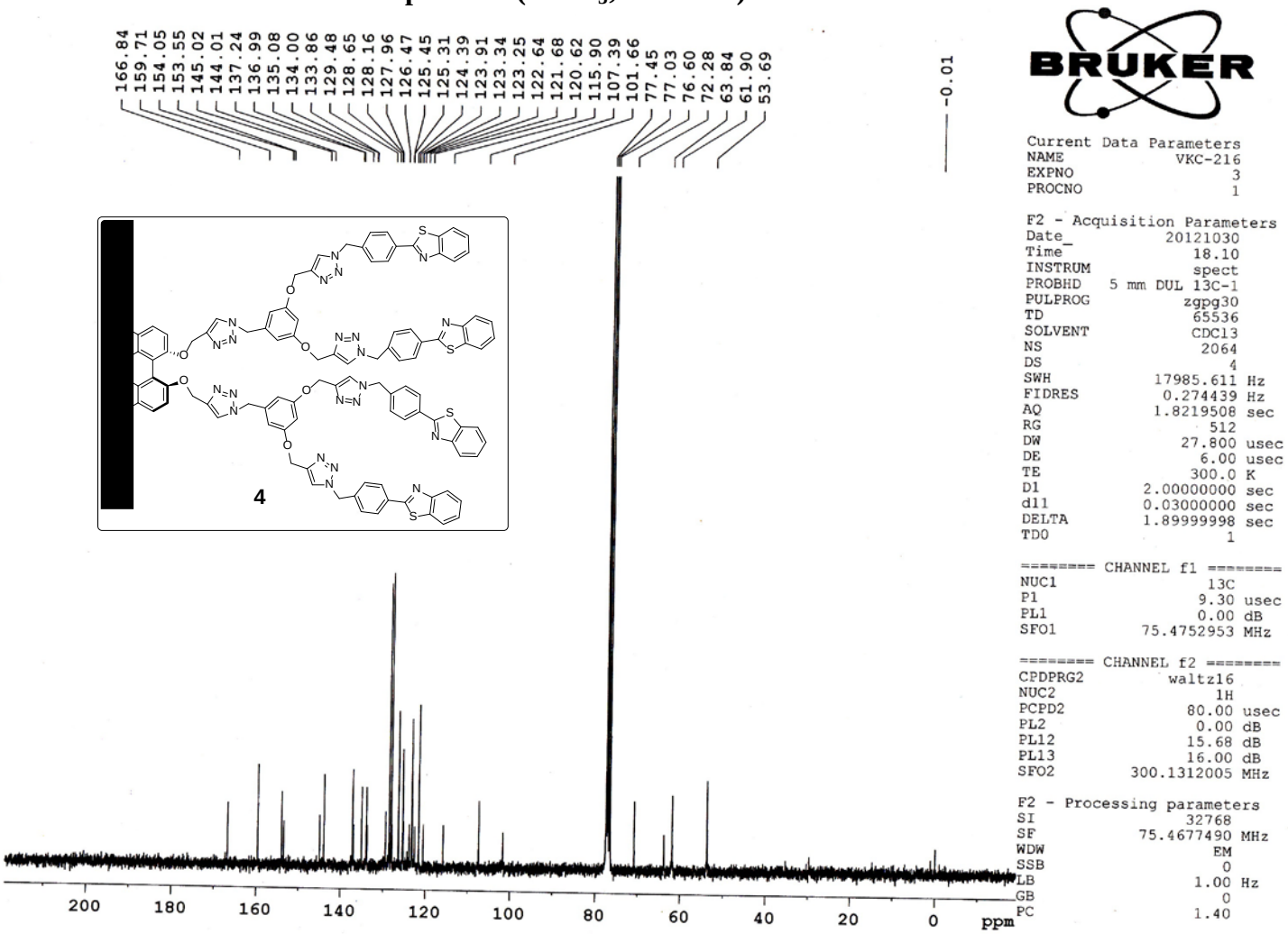
Current Data Parameters
NAME VKC-216
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20121030
Time 13.33
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6172.839 Hz
FIDRES 0.094190 Hz
AQ 5.3084660 sec
RG 161.3
DW 81.000 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 13.15 usec
PL1 0.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300069 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

^{1}H NMR Spectrum ($CDCl_3$, 300 MHz) of the dendrimer 4



BRUKER

```
Current Data Parameters
NAME                VKC-216
EXPNO                     3
PROCNO                    1

F2 - Acquisition Parameters
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Time                 18.10
INSTRUM              spect
PROBHD   5 mm DUL 13C-1
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                    2064
DS                       4
SWH             17985.611 Hz
FIDRES           0.274439 Hz
AQ              1.8219508 sec
RG                     512
DW                  27.800 usec
DE                    6.00 usec
TE                   300.0 K
D1             2.00000000 sec
d11            0.03000000 sec
DELTA          1.89999998 sec
TD0                      1

======== CHANNEL f1 ========
NUC1                   13C
P1                    9.30 usec
PL1                   0.00 dB
SFO1           75.4752953 MHz

======== CHANNEL f2 ========
CPDPRG2            waltz16
NUC2                    1H
PCPD2                80.00 usec
PL2                   0.00 dB
PL12                 15.68 dB
PL13                 16.00 dB
SFO2          300.1312005 MHz

F2 - Processing parameters
SI                    32768
SF             75.4677490 MHz
WDW                       EM
SSB                        0
LB                      1.00 Hz
GB                         0
PC                      1.40
```

^{13}C NMR Spectrum ($CDCl_3$, 75 MHz) of the dendrimer 4