

## Supporting information for

### Diastereoselective copper-catalyzed 1,4-addition of Grignard reagents to *N*-enoyl oxazolidinones

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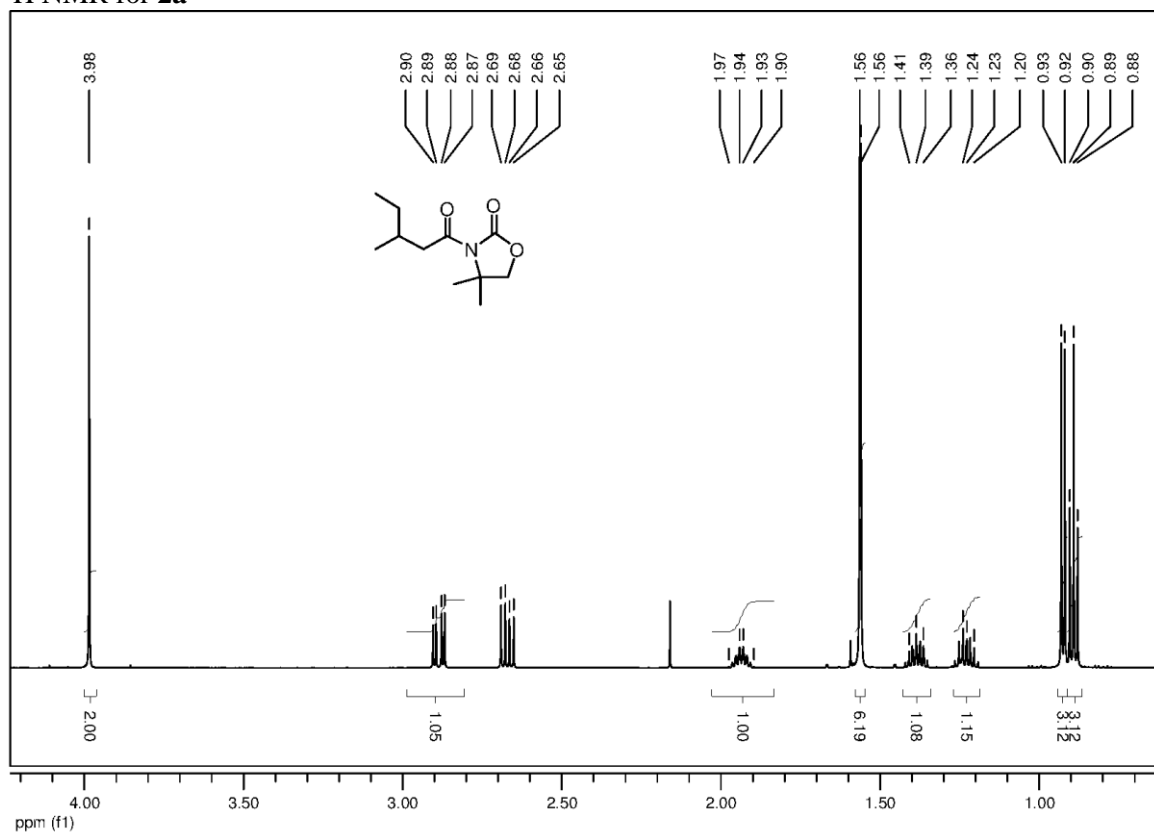
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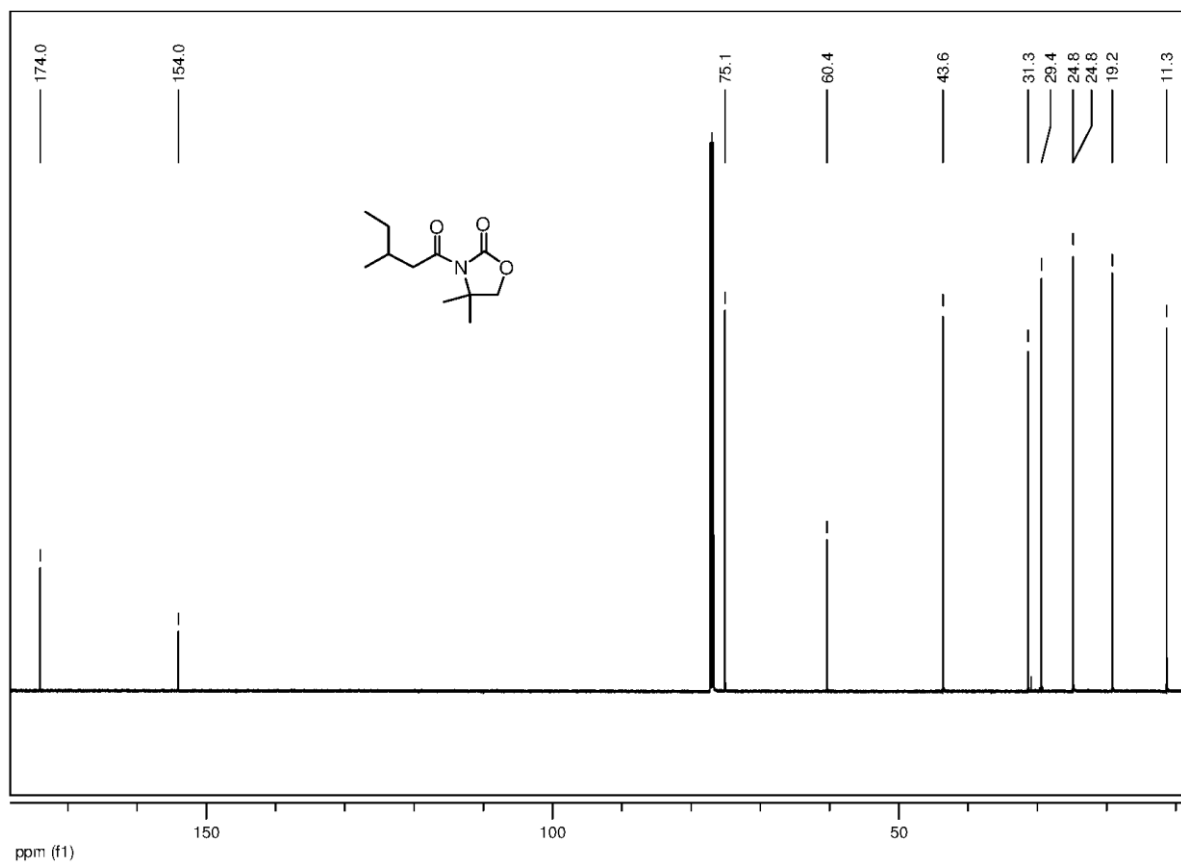
## General Information

All reactions were carried out in inert atmosphere of Ar. Solvents were dried and purified by standard methods before use. Chemical shifts ( $\delta$ ) are given in ppm relative to tetramethylsilane for  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR. Specific optical rotations are given in  $\text{deg cm}^{-3}.\text{g}^{-1}.\text{dm}^{-1}$ . Flash chromatography was performed on silica gel 40 – 63  $\mu\text{m}$ . Thin-layer chromatography was performed on TLC-plates silica gel 60 with F-254 UV indicator. Diastereomeric ratios were determined by  $^1\text{H}$  NMR and GC. Enantiomeric ratios were determined by HPLC on Chiralpak, OD-H, IB, AS-H (column using hexane/*i*PrOH as a mobile phase and detection with UV-detector at 254 nm, 218 nm).

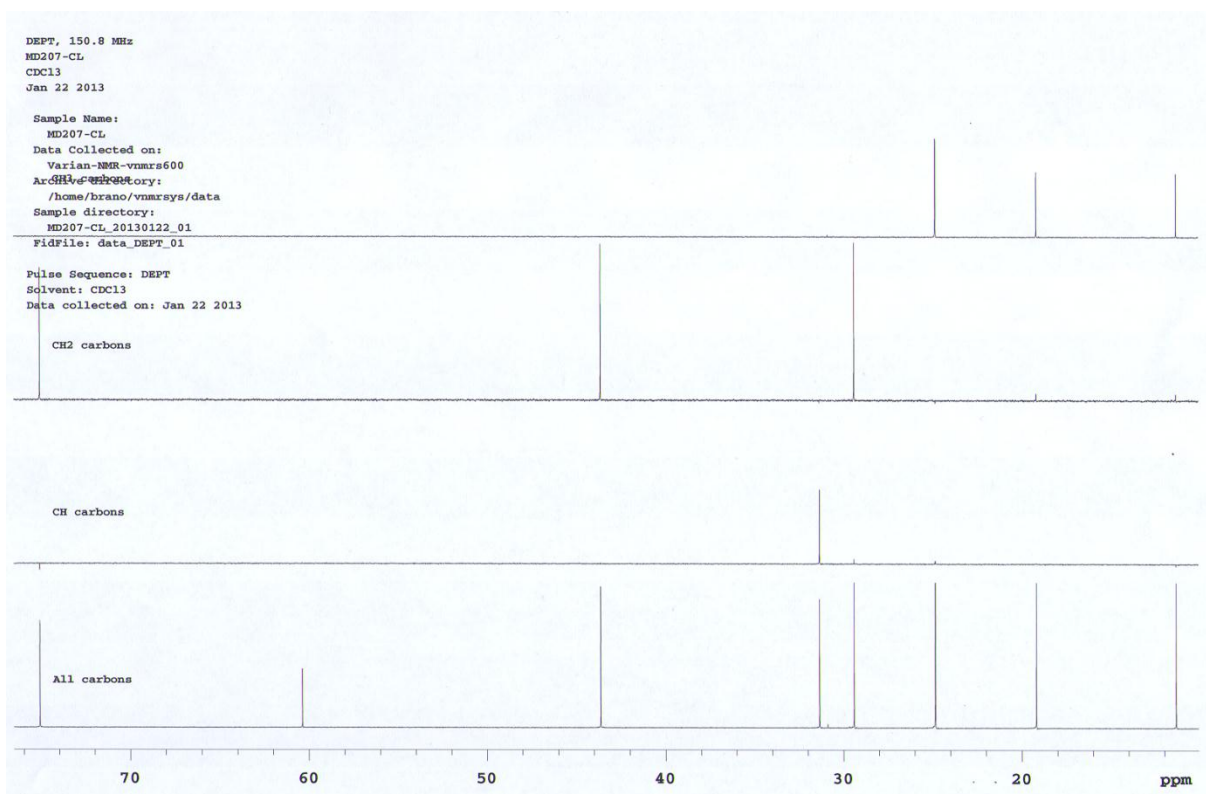
<sup>1</sup>H NMR for **2a**



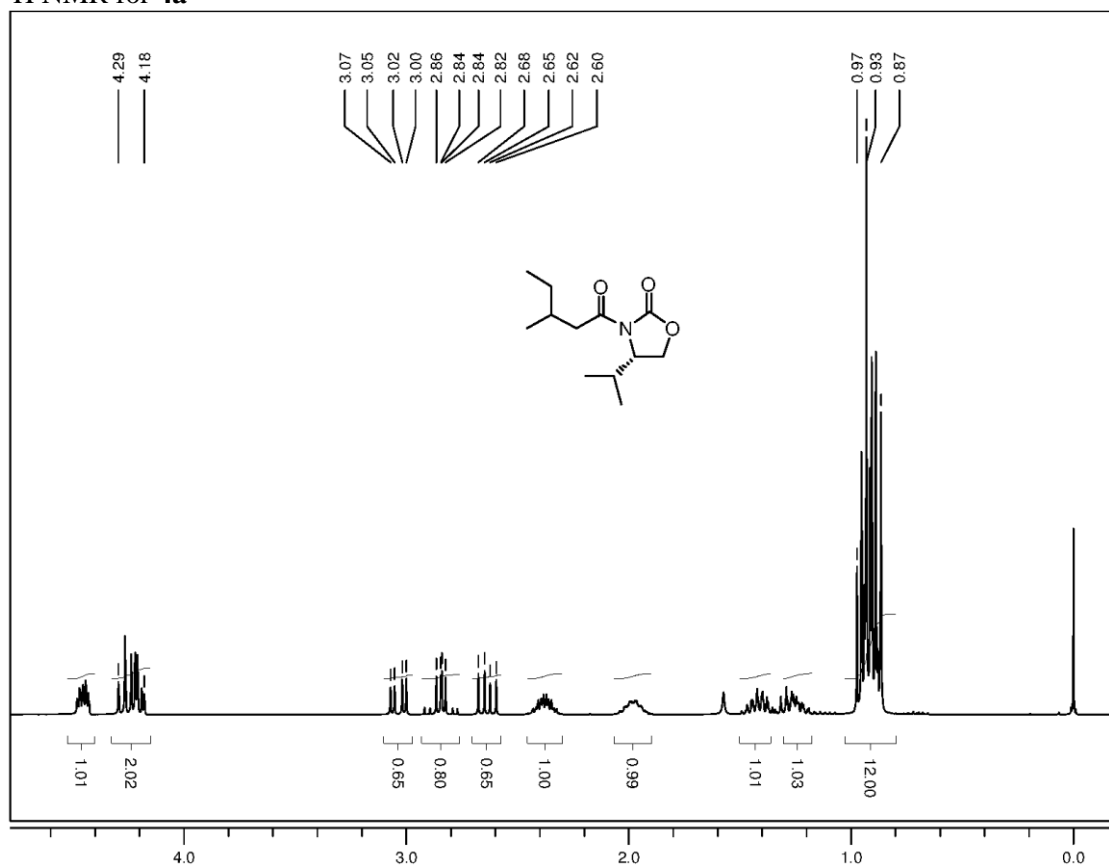
<sup>13</sup>C NMR for **2a**



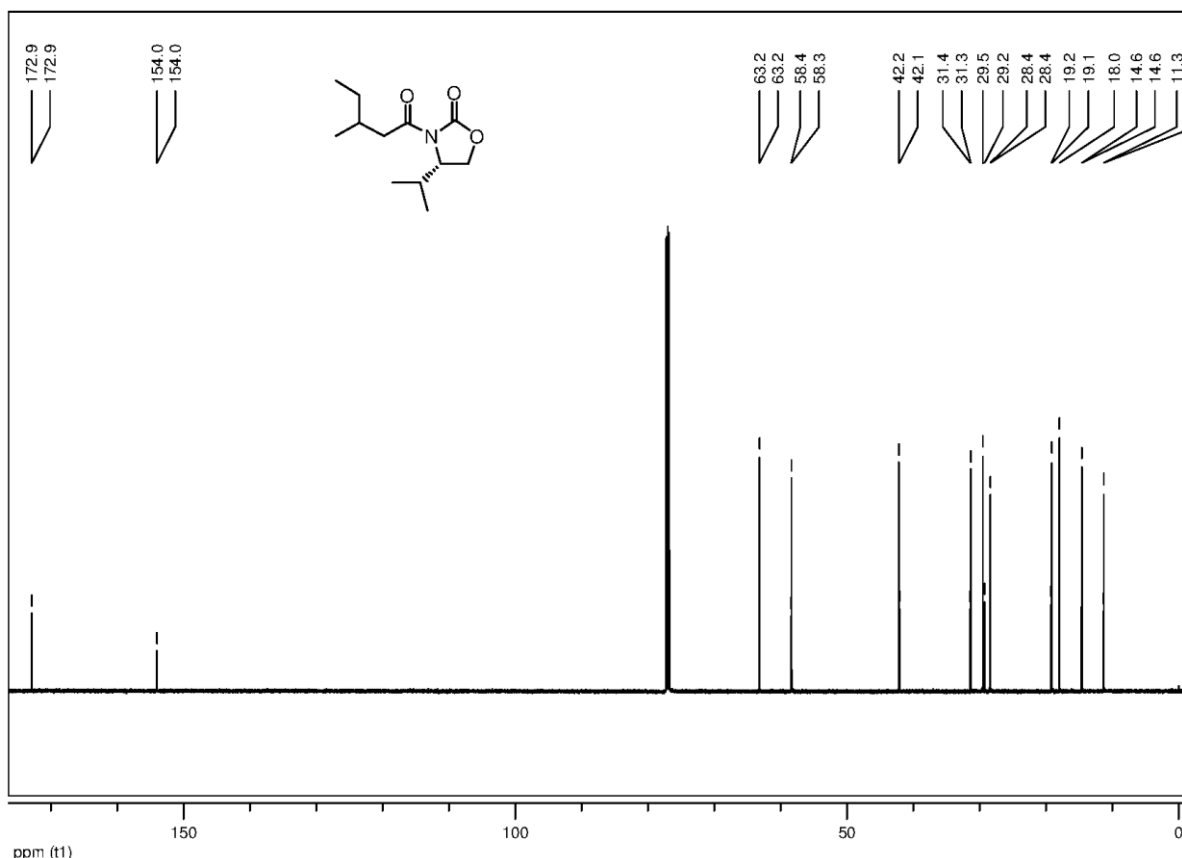
### DEPT for 2a



### <sup>1</sup>H NMR for 4a



### $^{13}\text{C}$ NMR for **4a**



### DEPT for **4a**

DEPT, 150.8 MHz  
MD243  
CDC13  
Nov 6 2012

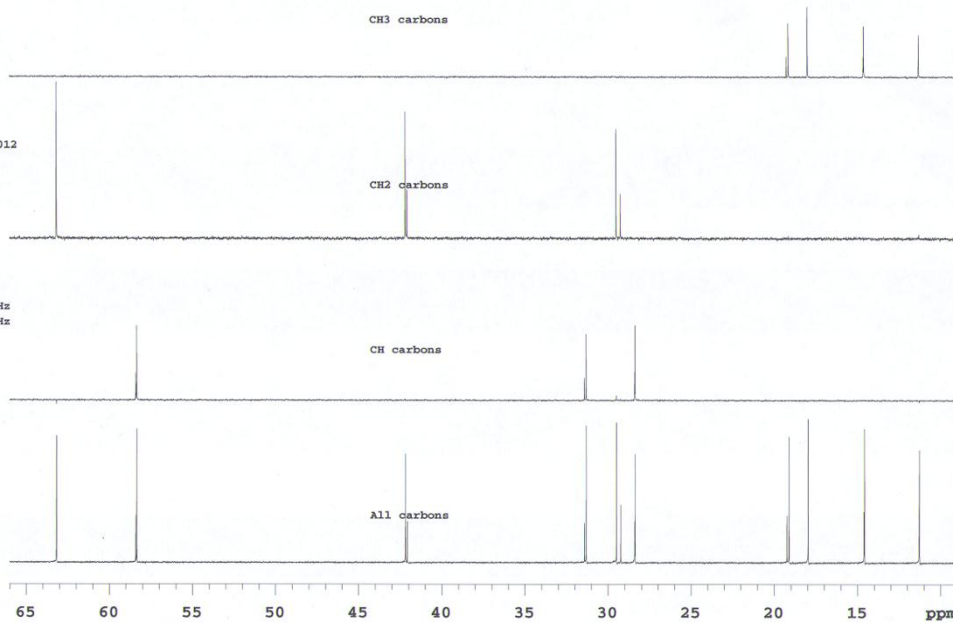
Sample Name:  
MD243  
Data Collected on:  
Varian-NMR-vnmrs600  
Archive directory:  
/home/brano/vnmrsys/data  
Sample directory:  
MD243\_20121106\_01  
FidFile: data\_DEPT\_01

Pulse Sequence: DEPT  
Solvent: CDC13  
Data collected on: Nov 6 2012

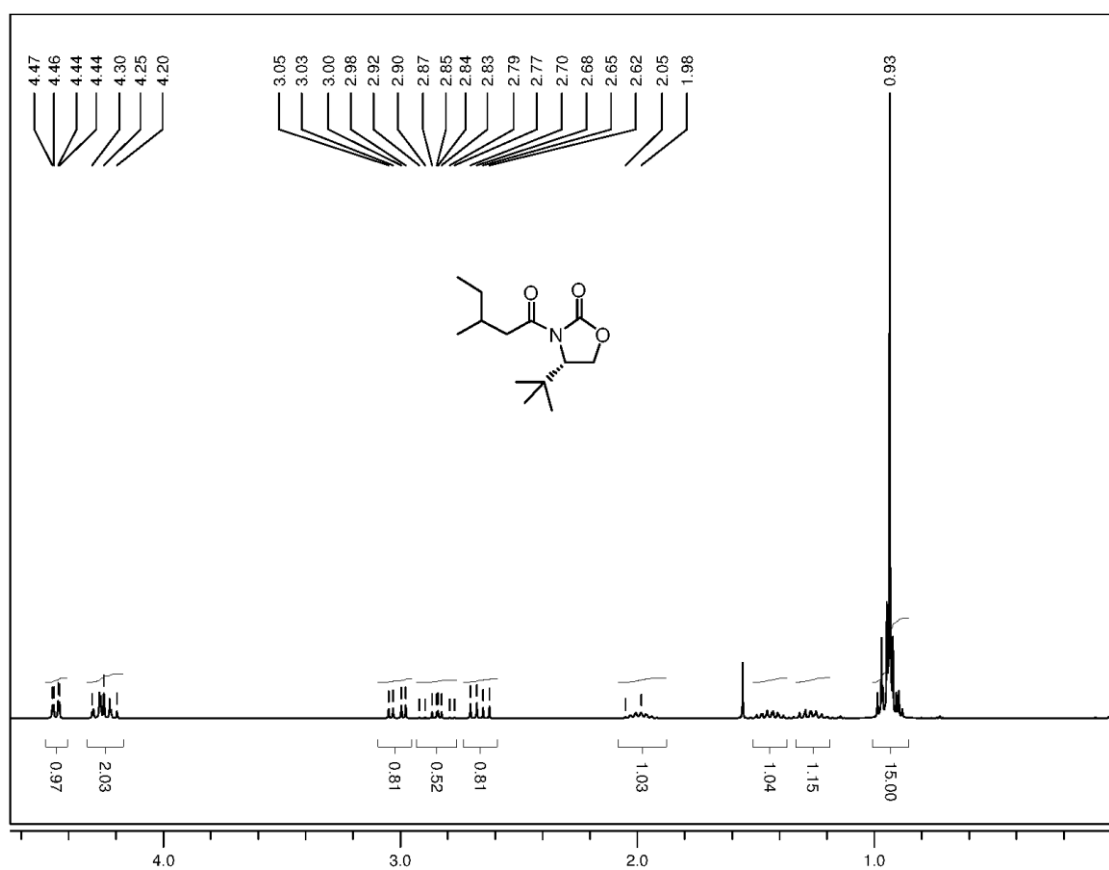
Temp. 25.0 C / 298.1 K  
Operator: vnmr1

Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 37879.8 Hz  
256 repetitions

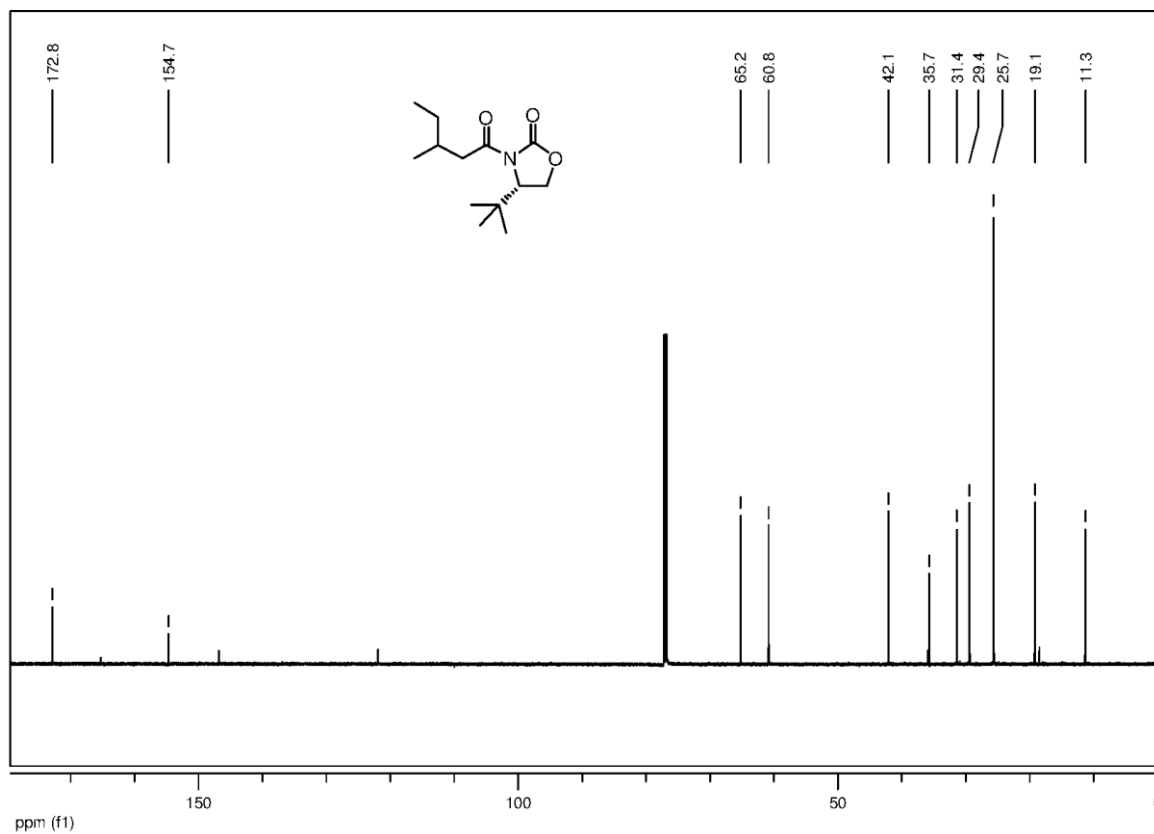
OBSERVE C13, 150.814485 MHz  
DECOUPLE H1, 599.7696724 MHz  
Power 40 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 1.0 Hz  
FT size 131072  
Total time 43 min



$^1\text{H}$  NMR for **4b**



$^{13}\text{C}$  NMR for **4b**



## DEPT for 4b

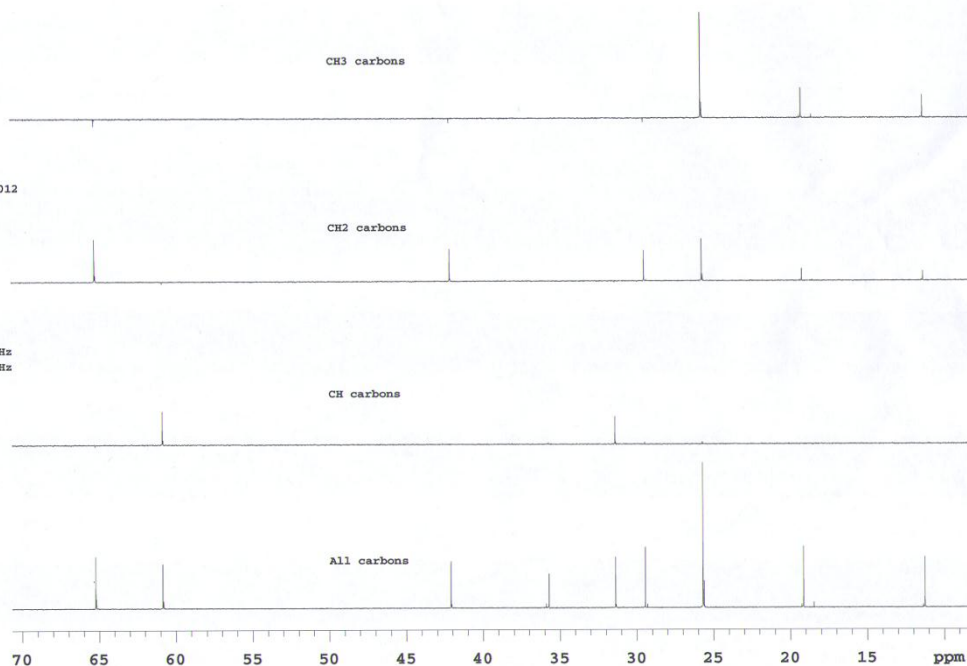
DEPT, 150 MHz  
MD305-DEST  
CDCl<sub>3</sub>  
Nov 9 2012

Sample Name:  
MD305-DEST  
Data Collected on:  
Varian-NMR-vnmrs600  
Archive directory:  
/home/branco/vnmrsys/data  
Sample directory:  
MD305-DEST\_20121109\_01  
FidFile: data\_DEPT\_01

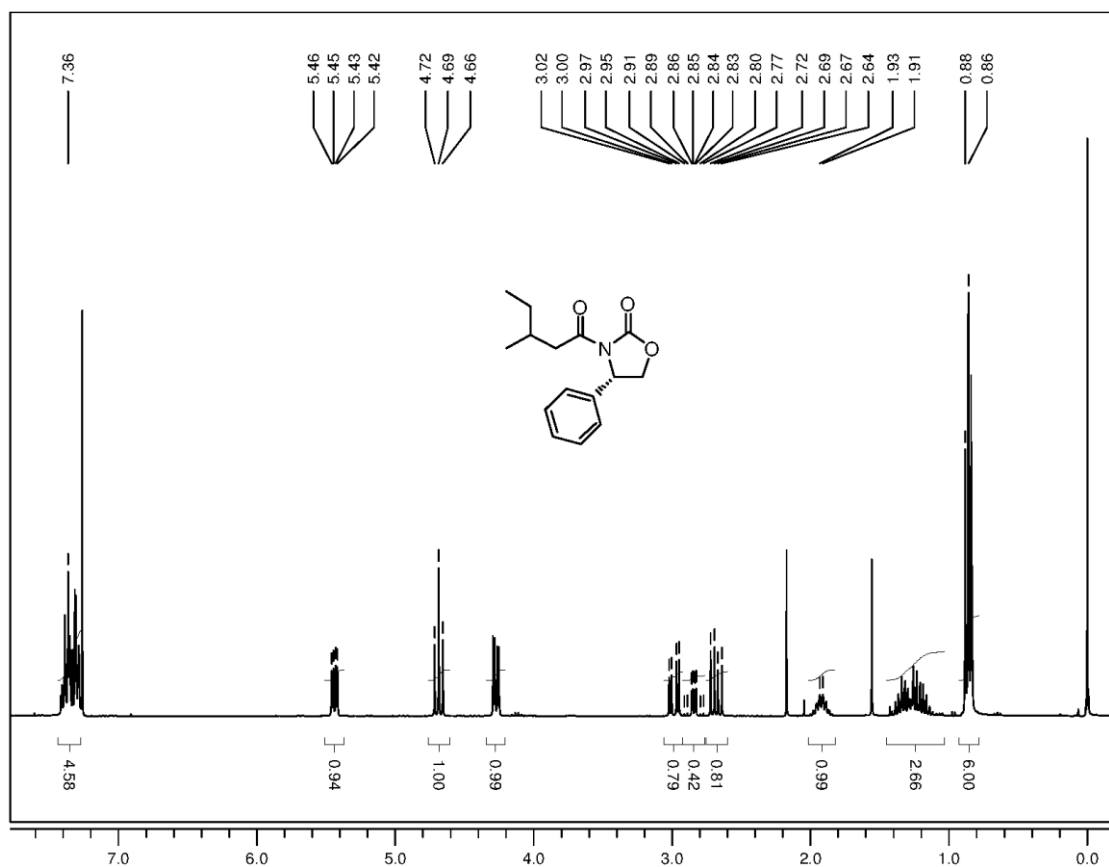
Pulse Sequence: DEPT  
Solvent: CDCl<sub>3</sub>  
Data collected on: Nov 9 2012

Temp. 25.0 C / 298.1 K  
Operator: vnmr1

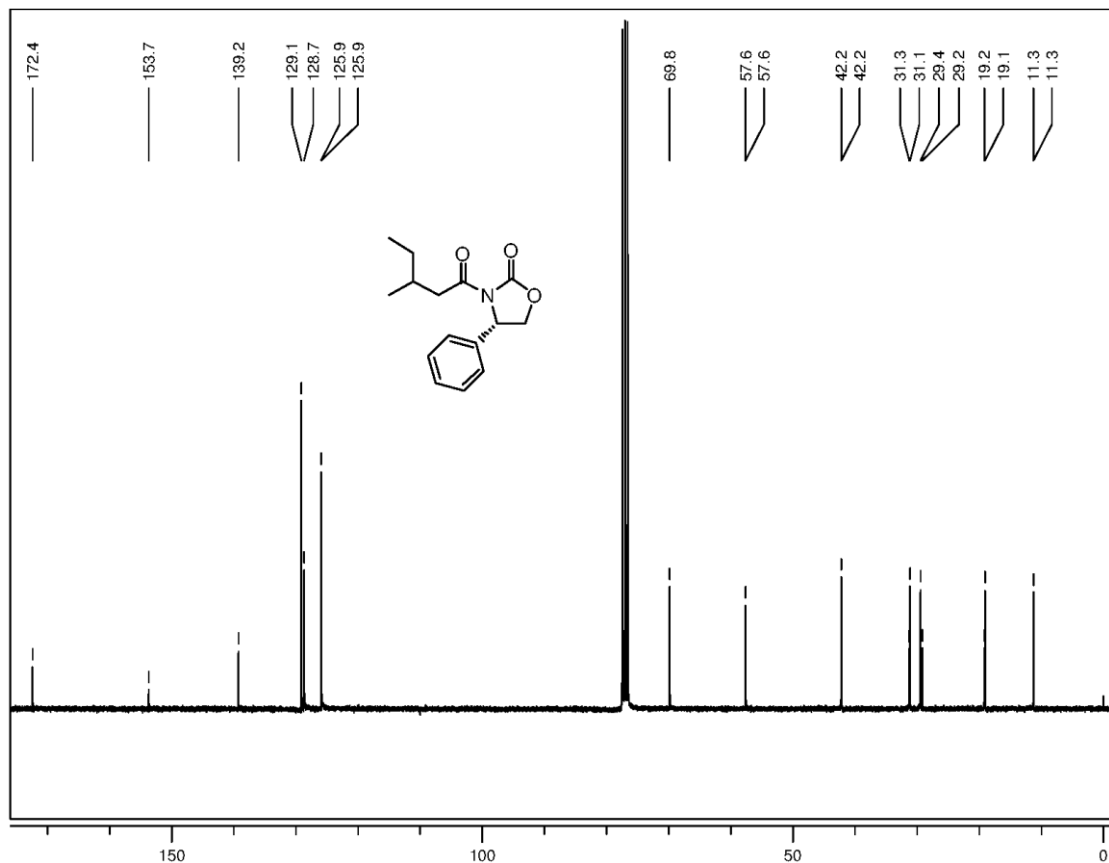
Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 37878.8 Hz  
128 repetitions  
OBSERVE c13, 150.8114486 MHz  
DECOUPLE h1, 599.7696724 MHz  
Power 40 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 1.0 Hz  
FT size 131072  
Total time 21 min



## <sup>1</sup>H NMR for 4c



### <sup>13</sup>C NMR for 4c



### DEPT for 4c

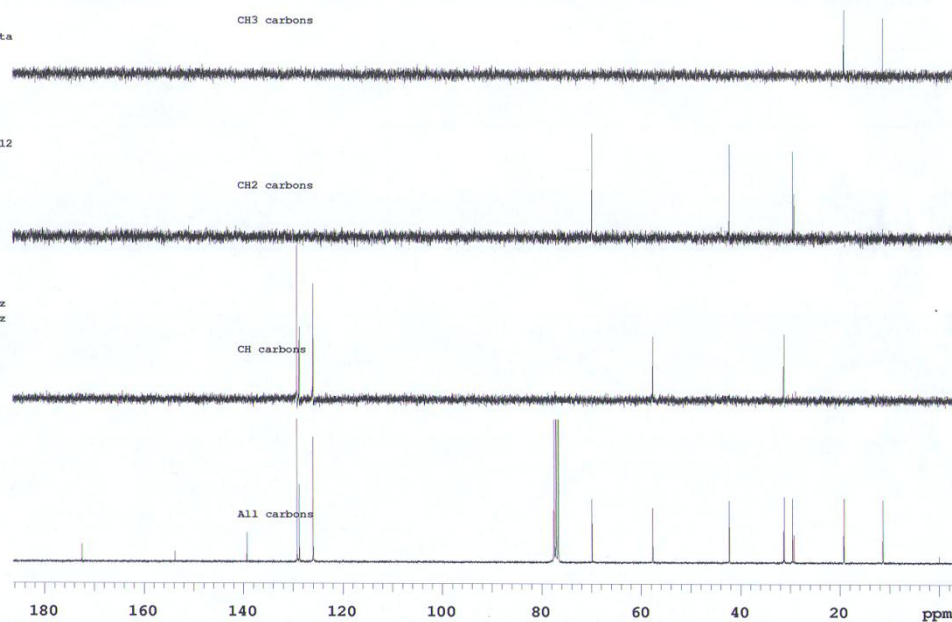
DEPT, 75.5 MHz  
MD288  
CDCl3  
Jul 4 2012

Sample Name: MD288  
Data Collected on: VNMR300-vnmrs300  
Archive directory: /home/chempack/vnmrsays/data  
Sample directory: MD288\_20120704\_01  
FidFile: DEPT\_001

Pulse Sequence: DEPT  
Solvent: CDCl3  
Data collected on: Jul 4 2012

Temp. 25.0 C / 298.1 K  
Operator: chempack

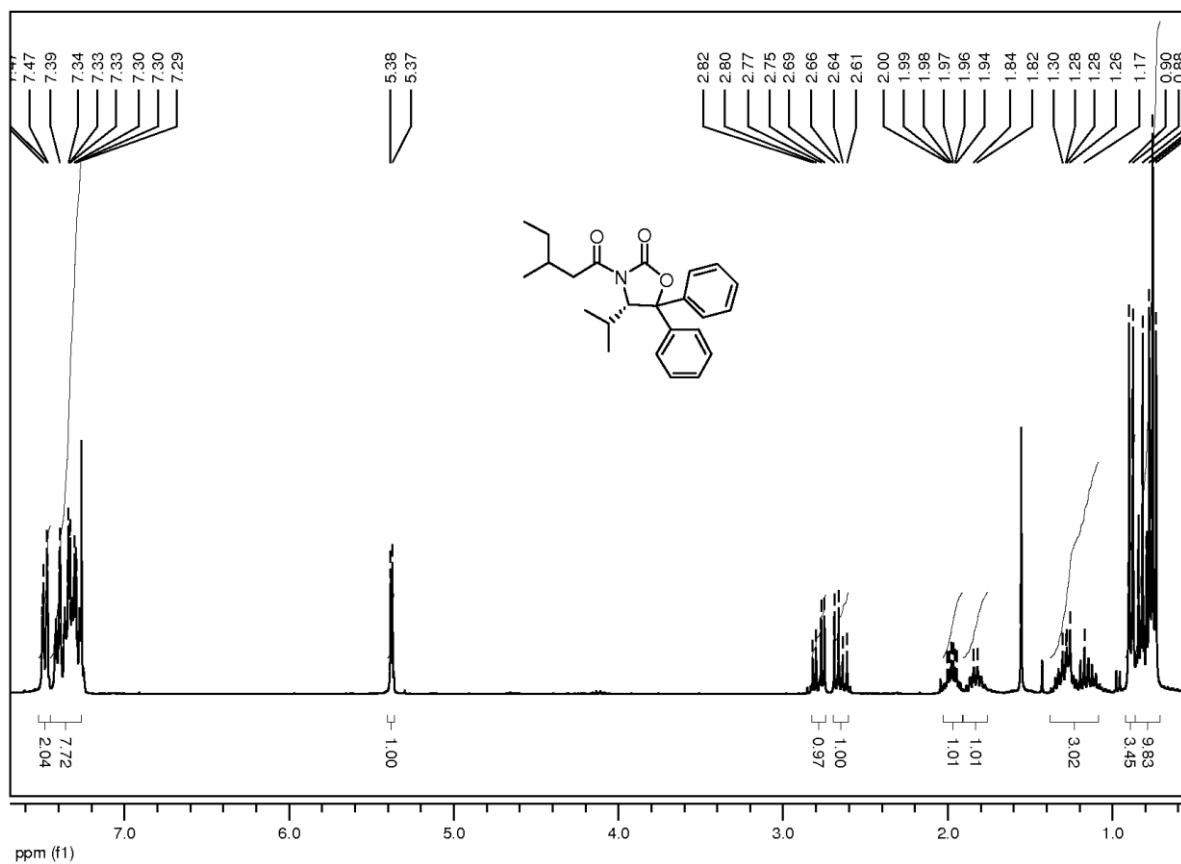
Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 18939.4 Hz  
1024 repetitions  
OBSERVE c13, 75.4511805 MHz  
DECOUPLE h1, 300.0656104 MHz  
Power 37 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.5 Hz  
FT size 65536  
Total time 2 hr, 51 min



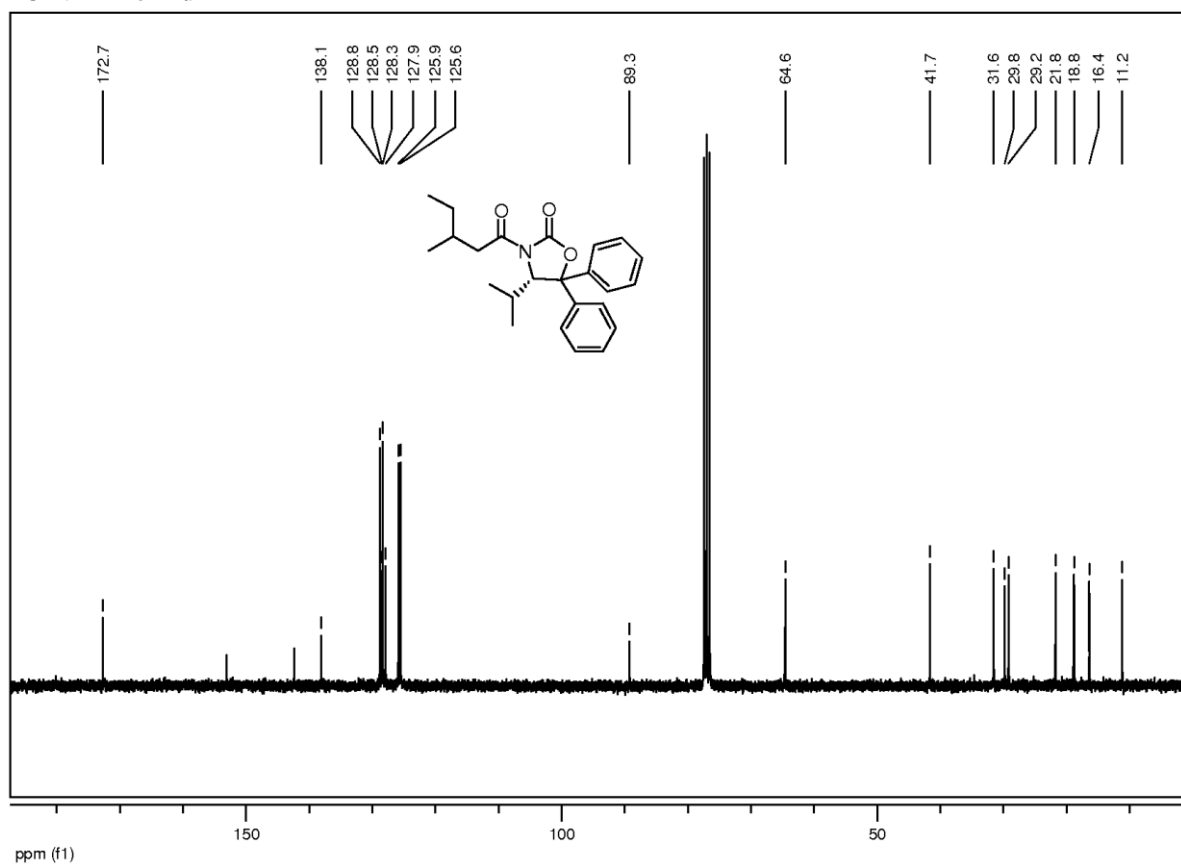
Plotname: DEPT\_001\_plot01



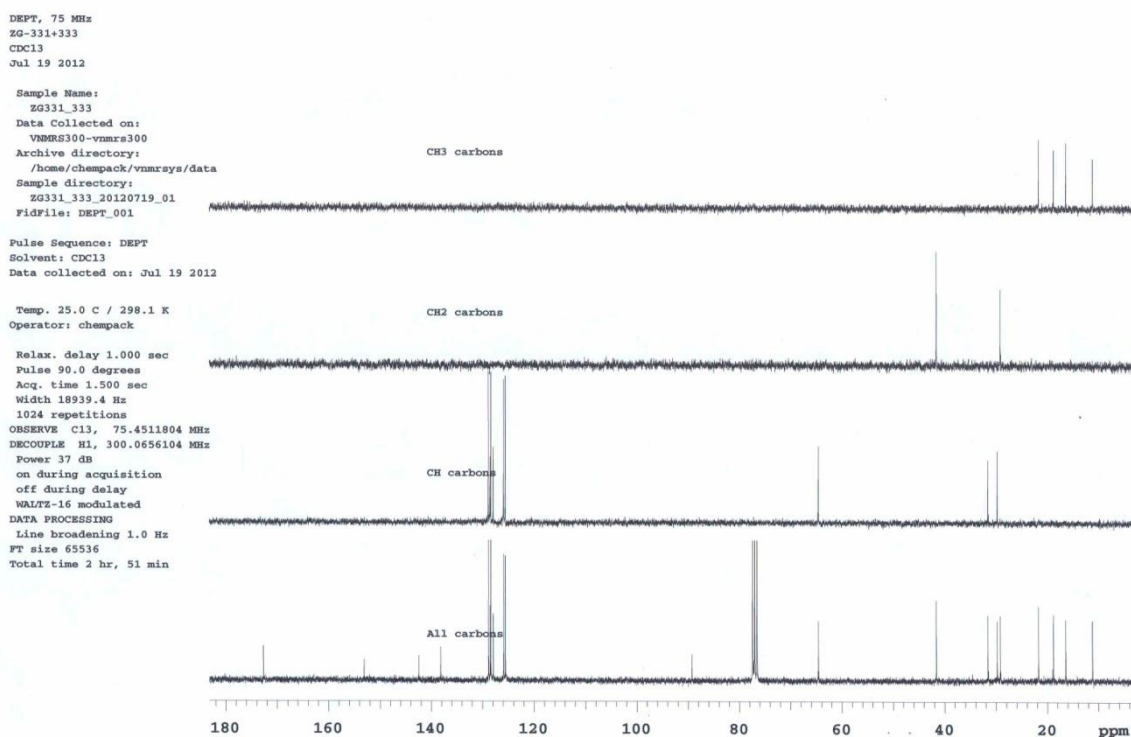
<sup>1</sup>H NMR for **4d**



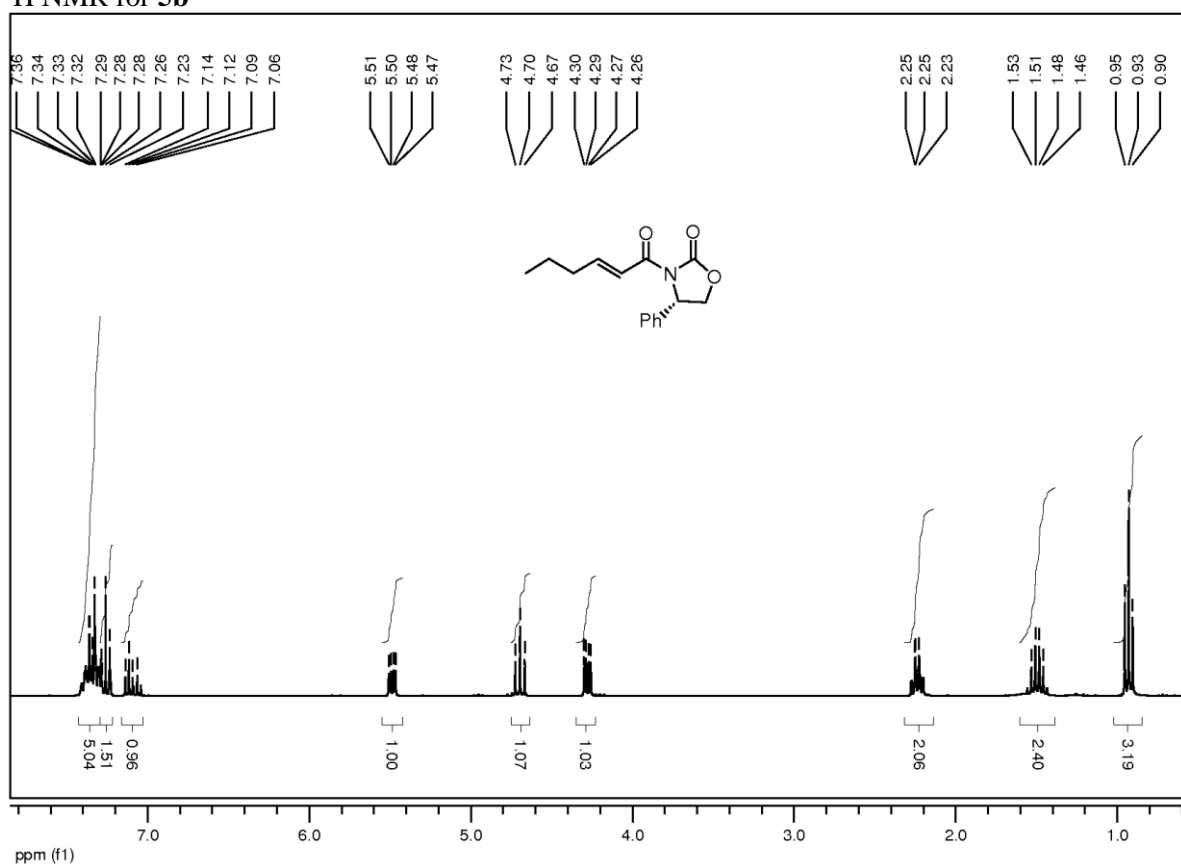
<sup>13</sup>C NMR for **4d**



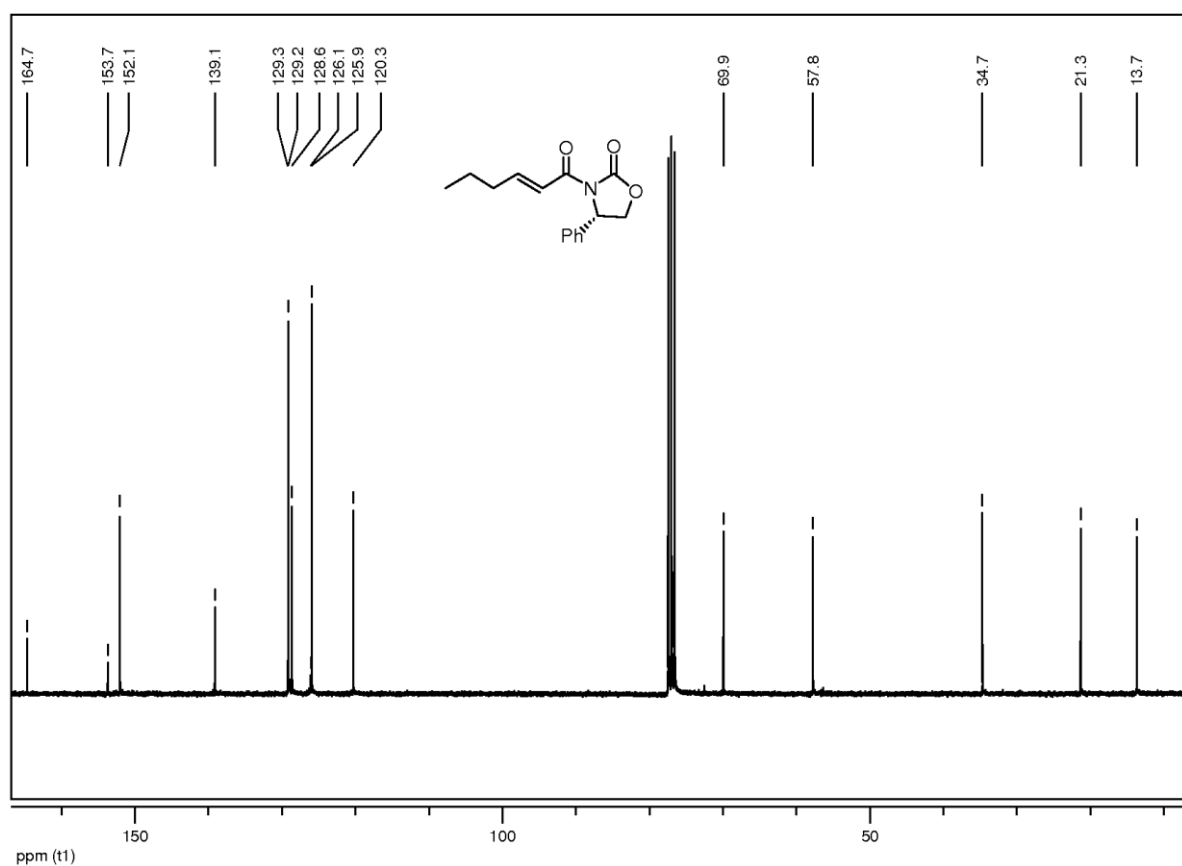
## DEPT for 4d



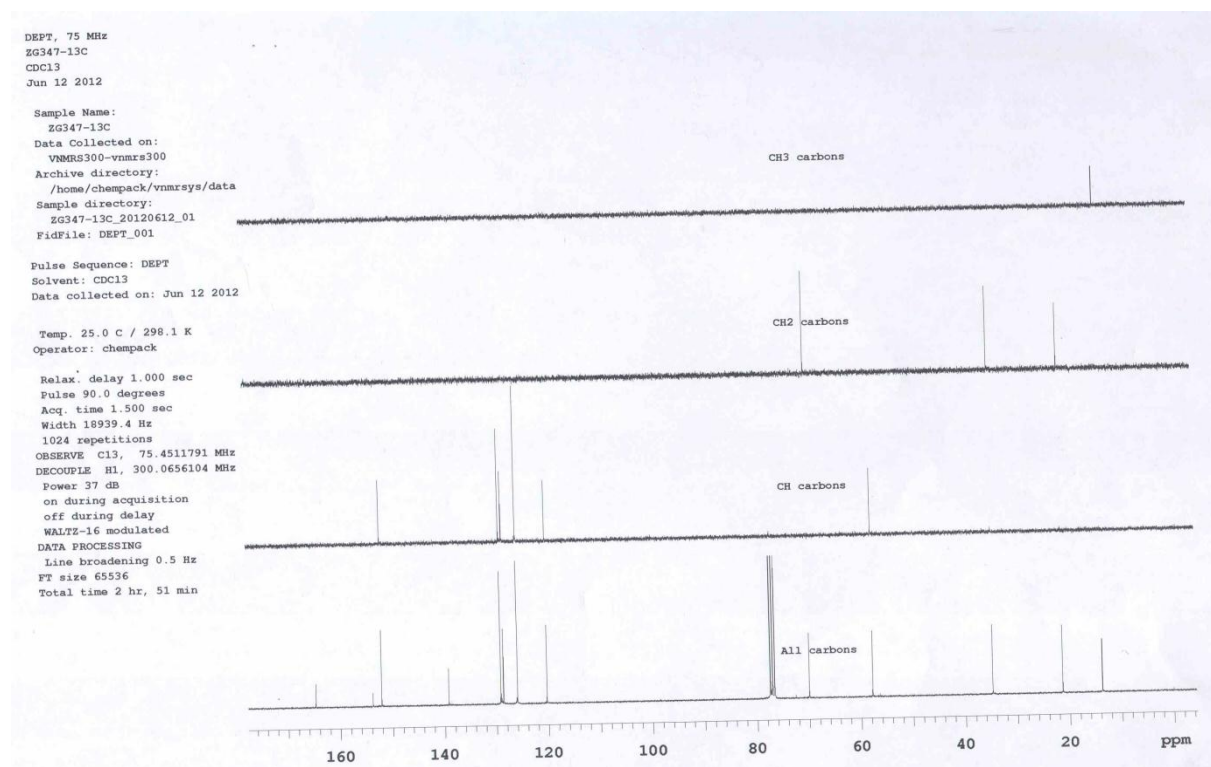
## <sup>1</sup>H NMR for 5b



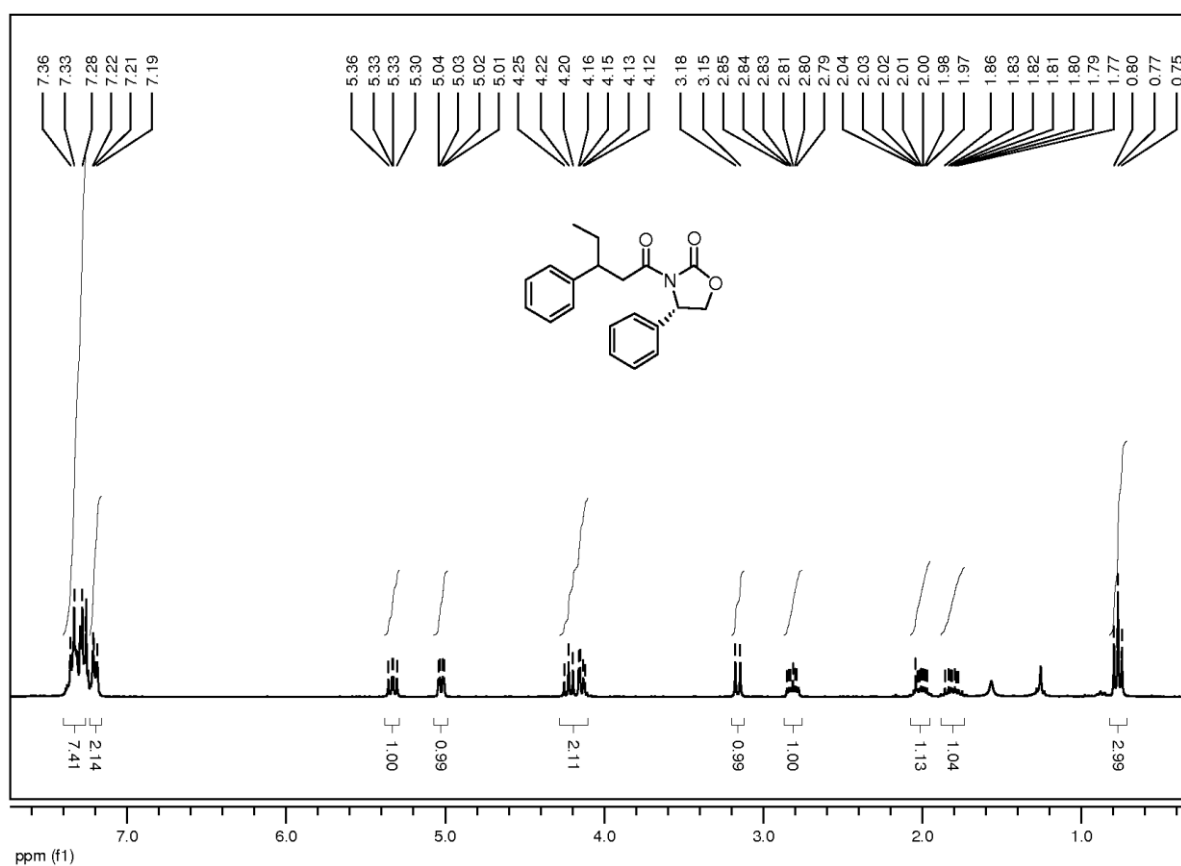
### $^{13}\text{C}$ NMR for **5b**



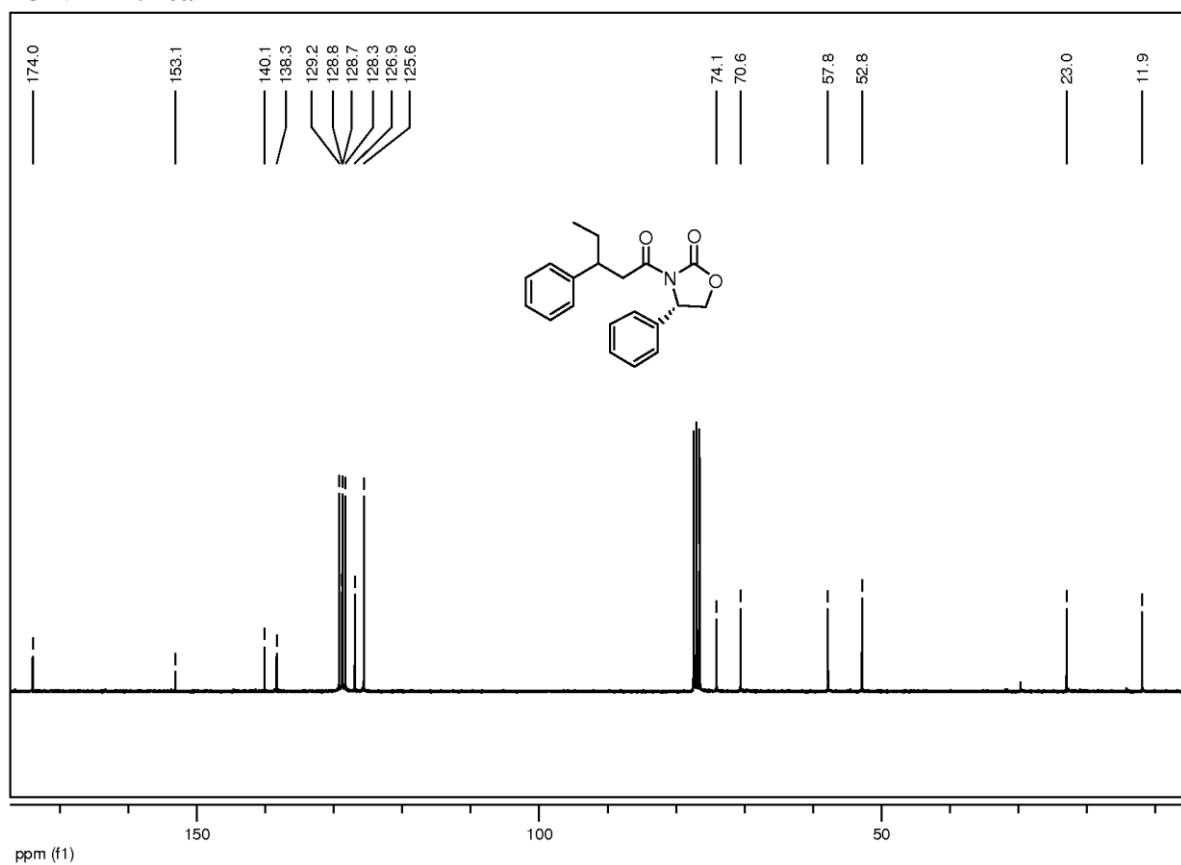
### DEPT for **5b**



<sup>1</sup>H NMR for **6a**



<sup>13</sup>C NMR for **6a**



## DEPT for 6a

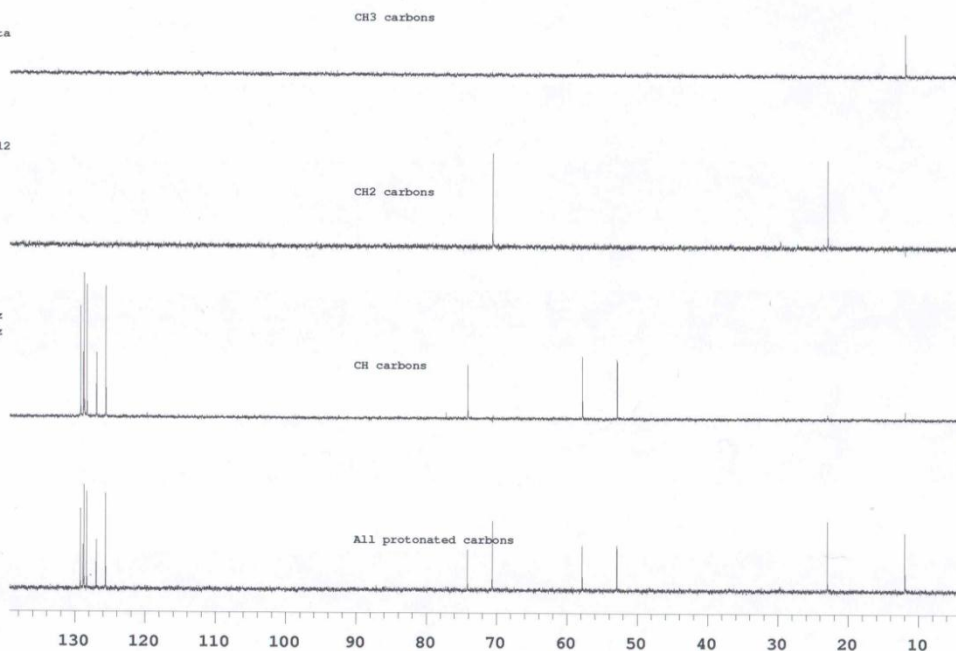
DEPT, 75.5 MHz  
ZG-356B-13C  
CDCl<sub>3</sub>  
Jul 2 2012

Sample Name:  
ZG-356B-13C  
Data Collected on:  
VMRS300-vmrs300  
Archive directory:  
/home/chempack/vmrsys/data  
Sample directory:  
ZG-356B-13C\_20120703\_02  
FidFile: DEPT\_001

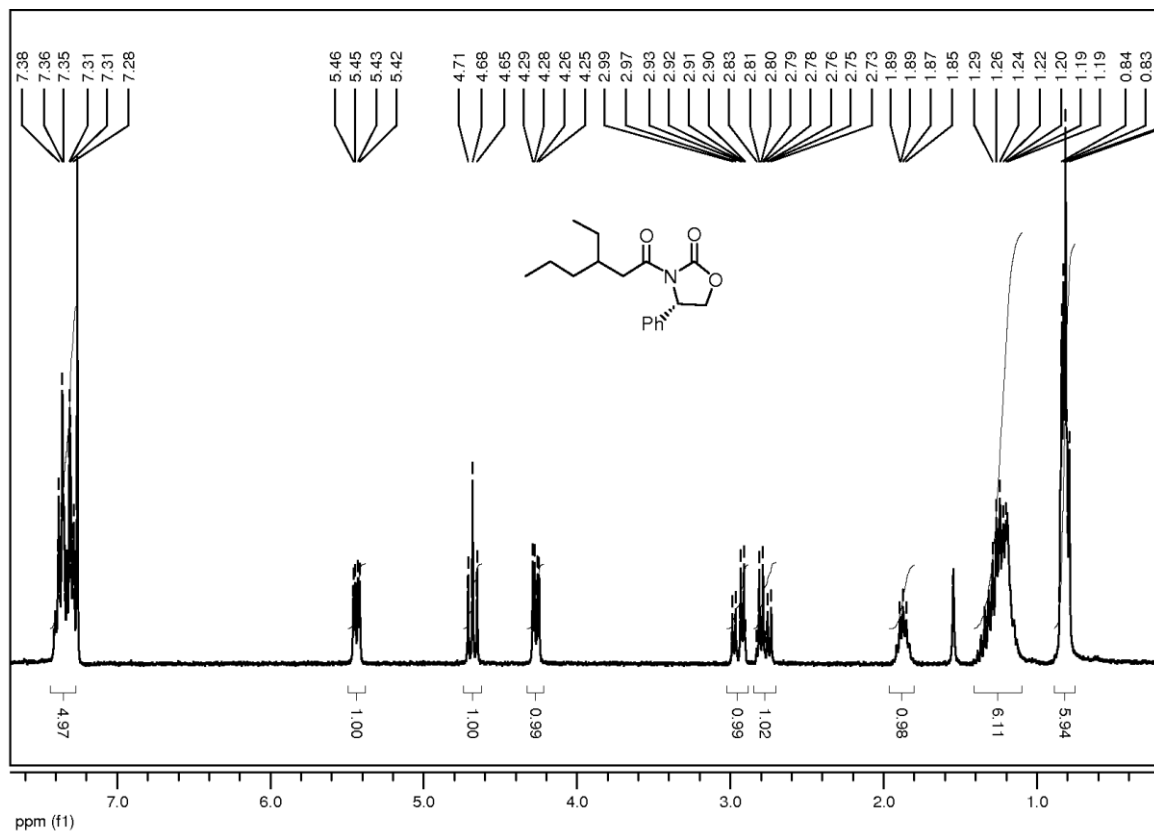
Pulse Sequence: DEPT  
Solvent: CDCl<sub>3</sub>  
Data collected on: Jul 2 2012

Temp. 25.0 C / 298.1 K  
Operator: chempack

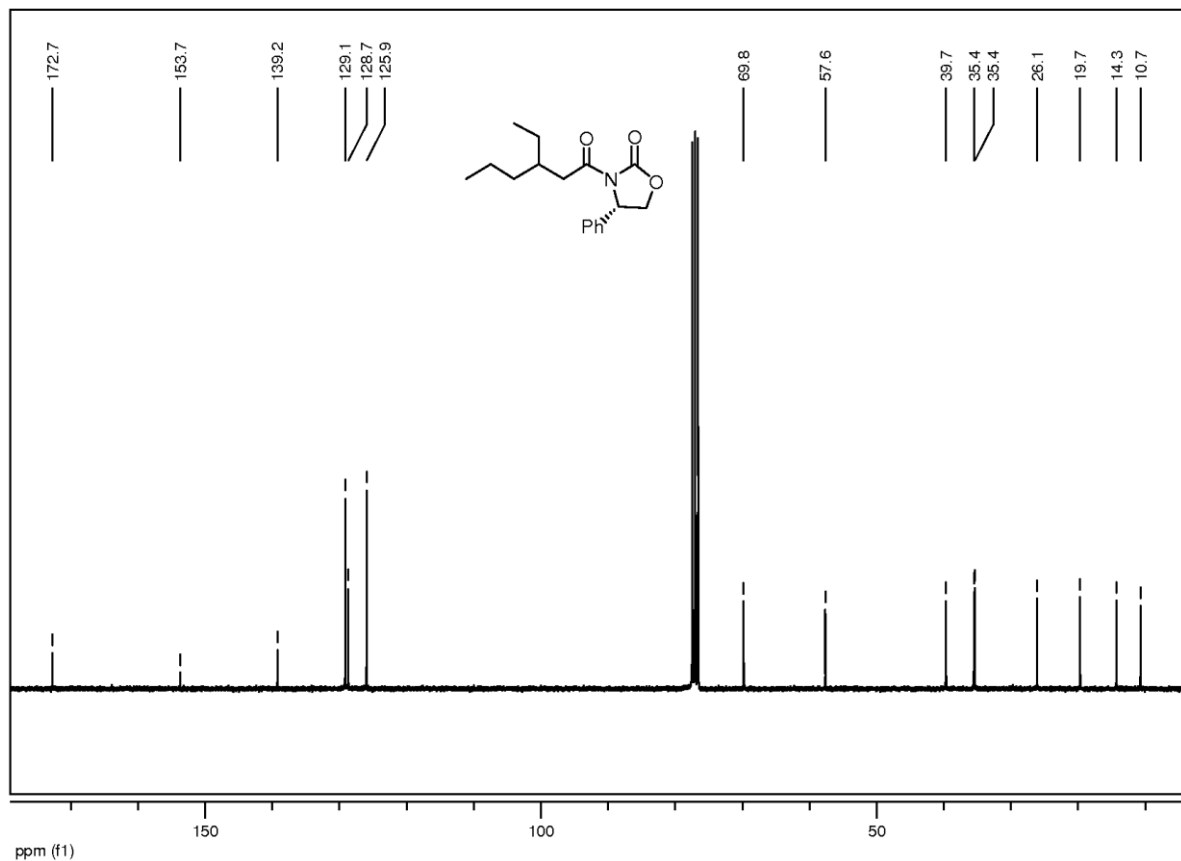
Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 18939.4 Hz  
1024 repetitions  
OBSERVE C13, 75.4511807 MHz  
DECOUPLE H1, 300.0656104 MHz  
Power 37 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.7 Hz  
FT size 65536  
Total time 2 hr, 51 min



## <sup>1</sup>H NMR for 6b



### $^{13}\text{C}$ NMR for **6b**



### DEPT for **6b**

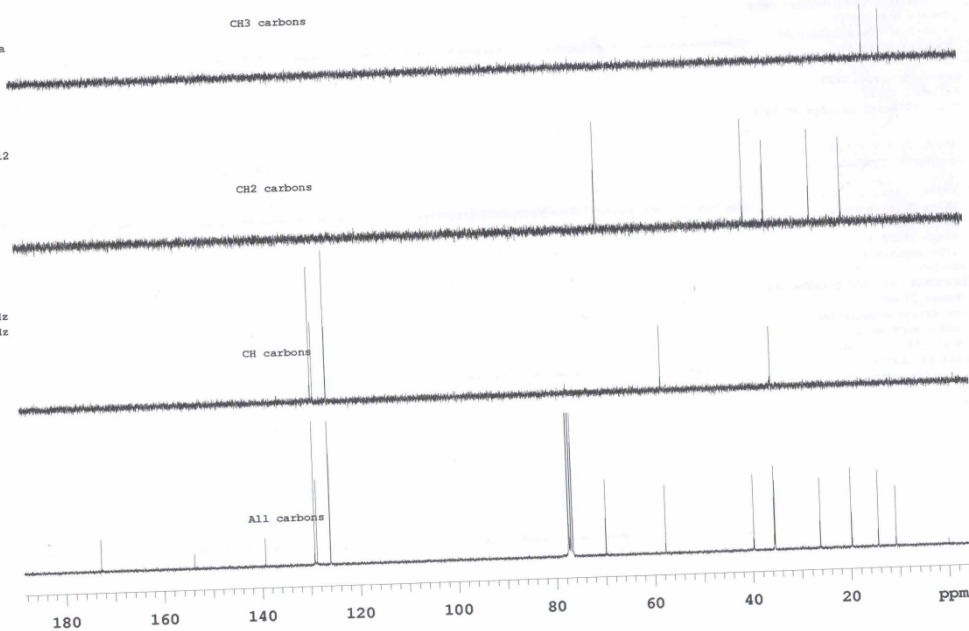
DEPT, 75 MHz  
ZG-354-13C  
CDCl3  
Jun 20 2012

Sample Name:  
ZG-354C-13C  
Data Collected on:  
VNMRS300-vnmrs300  
Archive directory:  
/home/chempack/vnmrsays/data  
Sample directory:  
ZG-354C-13C\_20120620\_01  
FidFile: DEPT\_001

Pulse Sequence: DEPT  
Solvent: CDCl3  
Data collected on: Jun 20 2012

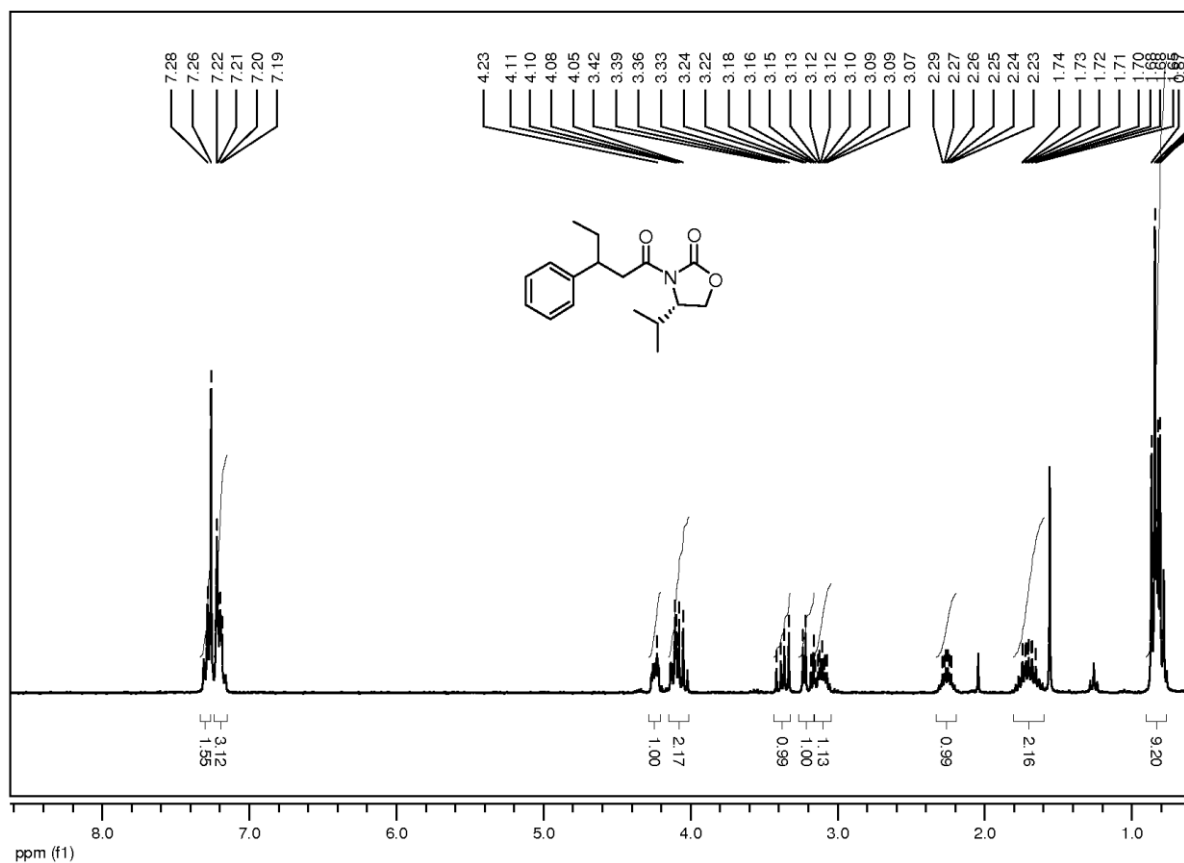
Temp. 25.0 C / 298.1 K  
Operator: chempack

Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 18939.4 Hz  
1024 repetitions  
OBSERVE C13, 75.4511791 MHz  
DECOUPLE H1, 300.0656104 MHz  
Power 37 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.5 Hz  
FT size 65536  
Total time 2 hr, 51 min

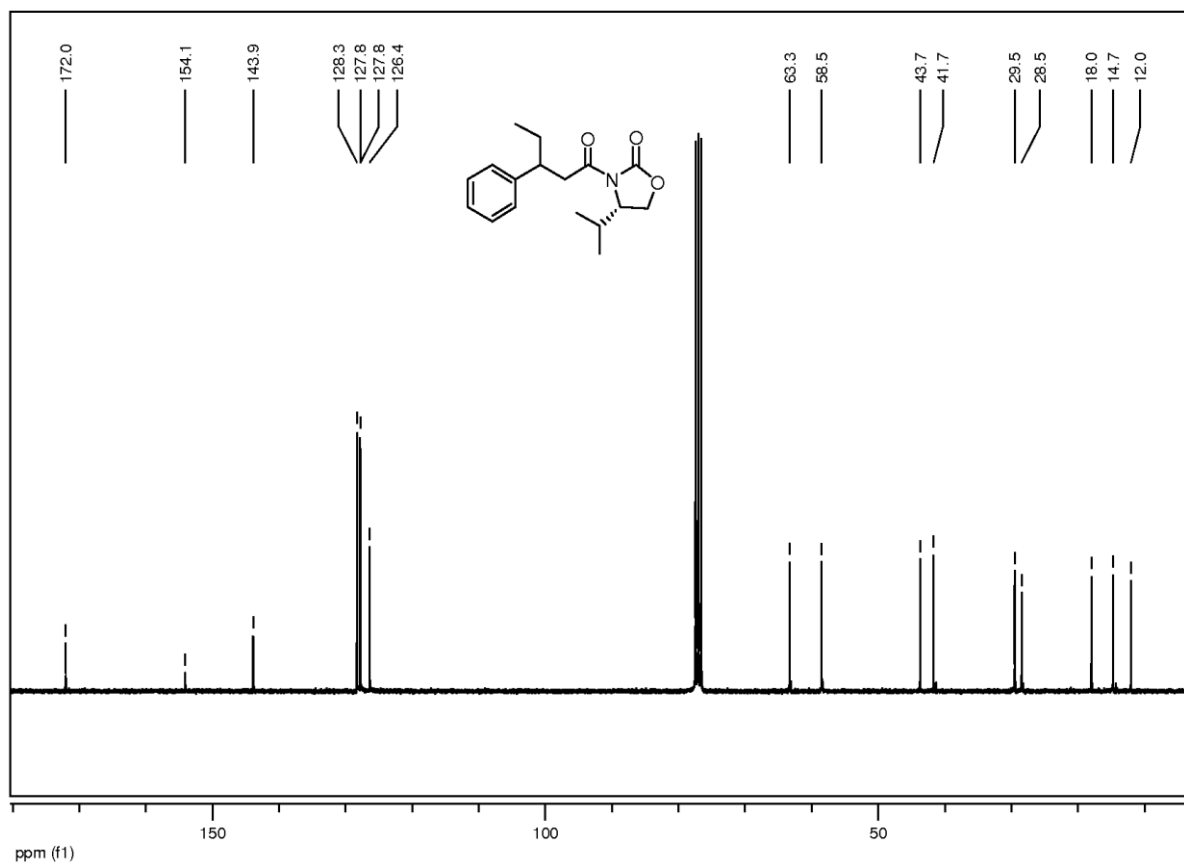


Plotname: DEPT\_001\_plot01

<sup>1</sup>H NMR for **6c**



<sup>13</sup>C NMR for **6c**



## DEPT for 6c

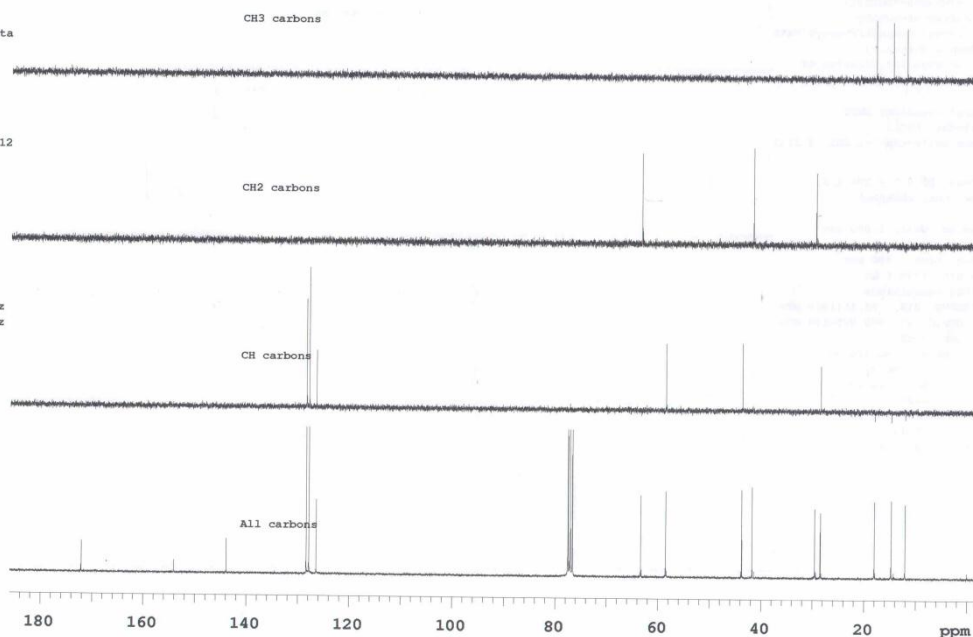
DEPT, 75.5 MHz  
ZG-358A-13C  
CDCl3  
Jul 3 2012

Sample Name:  
ZG-358A-13C  
Data Collected on:  
VNMR300-vnmrs300  
Archive directory:  
/home/chempack/vnmrsys/data  
Sample directory:  
ZG-358A-13C\_20120703\_01  
FidFile: DEPT\_001

Pulse Sequence: DEPT  
Solvent: CDCl3  
Data collected on: Jul 3 2012

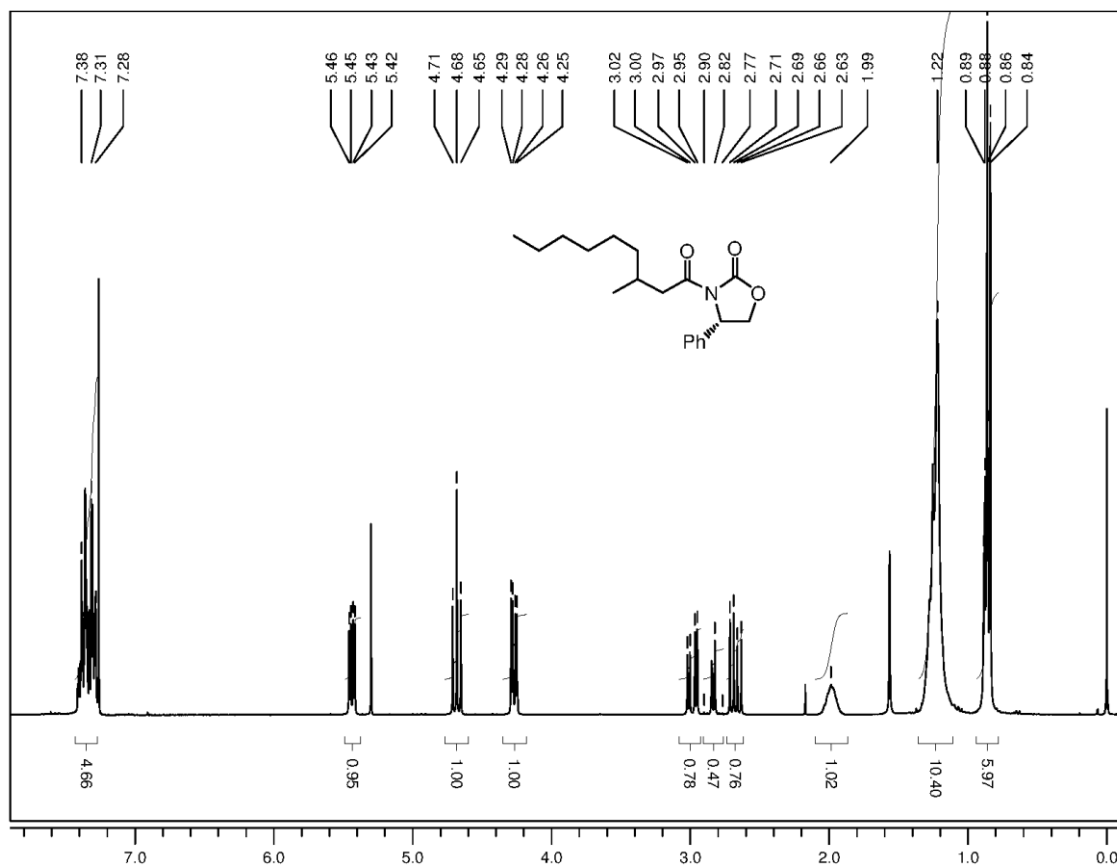
Temp. 25.0 C / 298.1 K  
Operator: chempack

Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 18939.4 Hz  
1024 repetitions  
OBSERVE C13, 75.4511805 MHz  
DECOUPLE H1, 300.0656104 MHz  
Power 37 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.5 Hz  
FT size 65536  
Total time 2 hr, 51 min



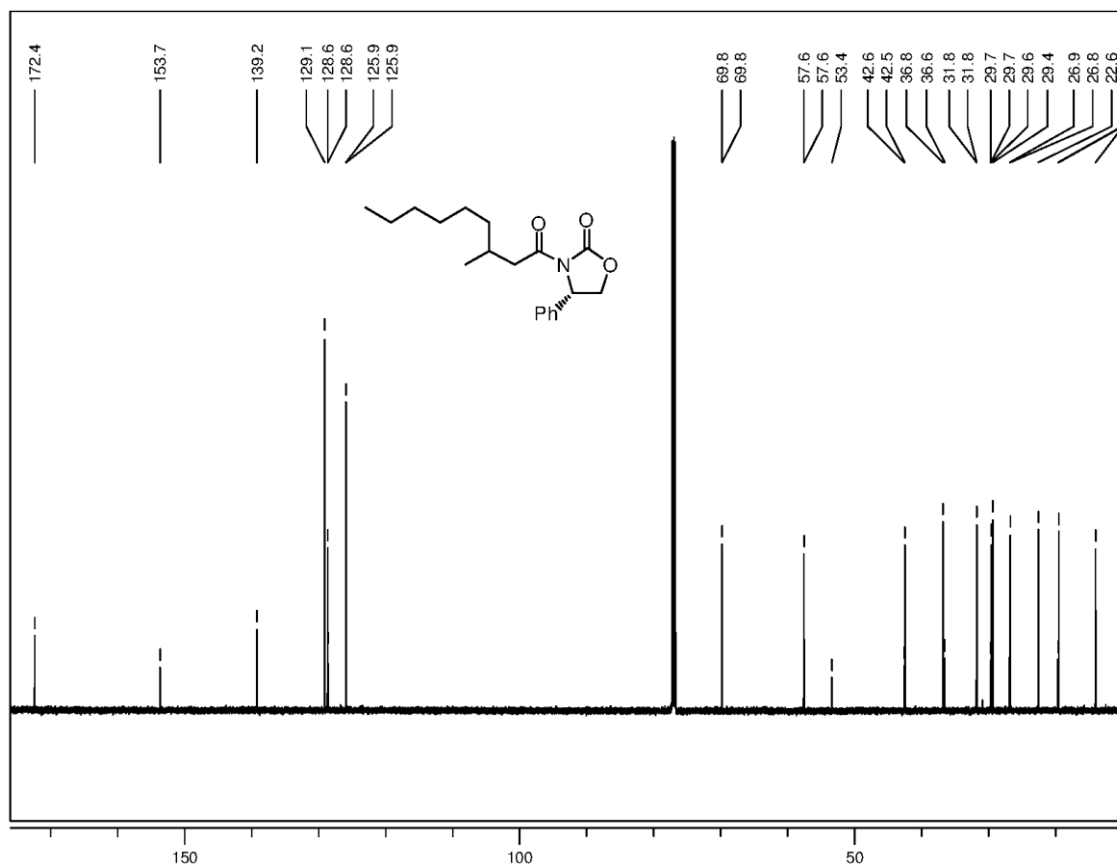
Plotname: DEPT\_001\_plot01

## <sup>1</sup>H NMR for 7a





### <sup>13</sup>C NMR for **7a**



### DEPT for **7a**

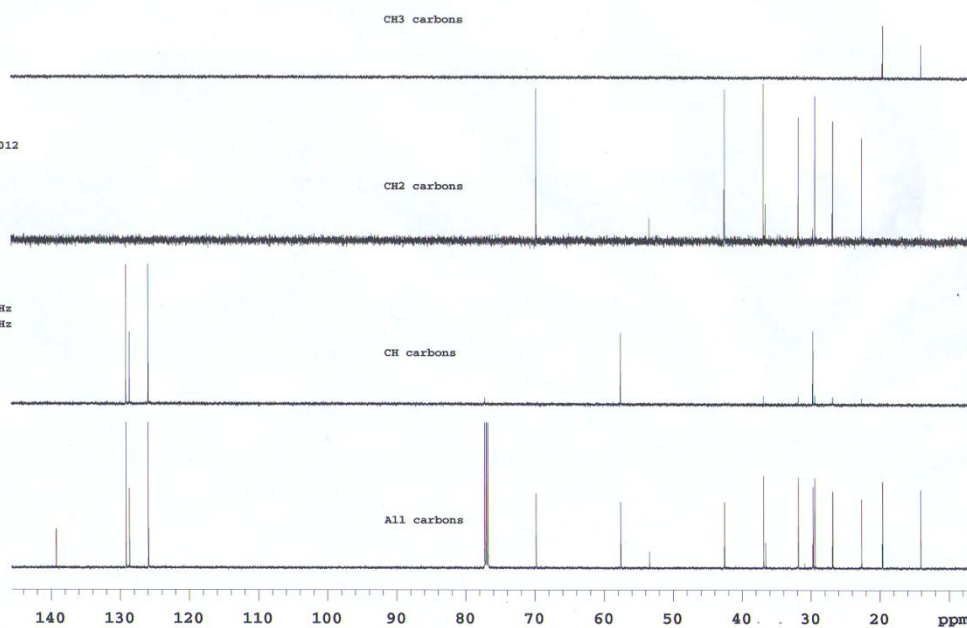
<sup>13</sup>C NMR, 150.8 MHz  
MD333  
CDCl<sub>3</sub>  
Aug 27 2012

Sample Name:  
MD333  
Data Collected on:  
Varian-NMR-vnmrs600  
Archive directory:  
/home/brano/vnmrsys/data  
Sample directory:  
MD333\_20120827\_01  
FidFile: data\_DEPT\_01

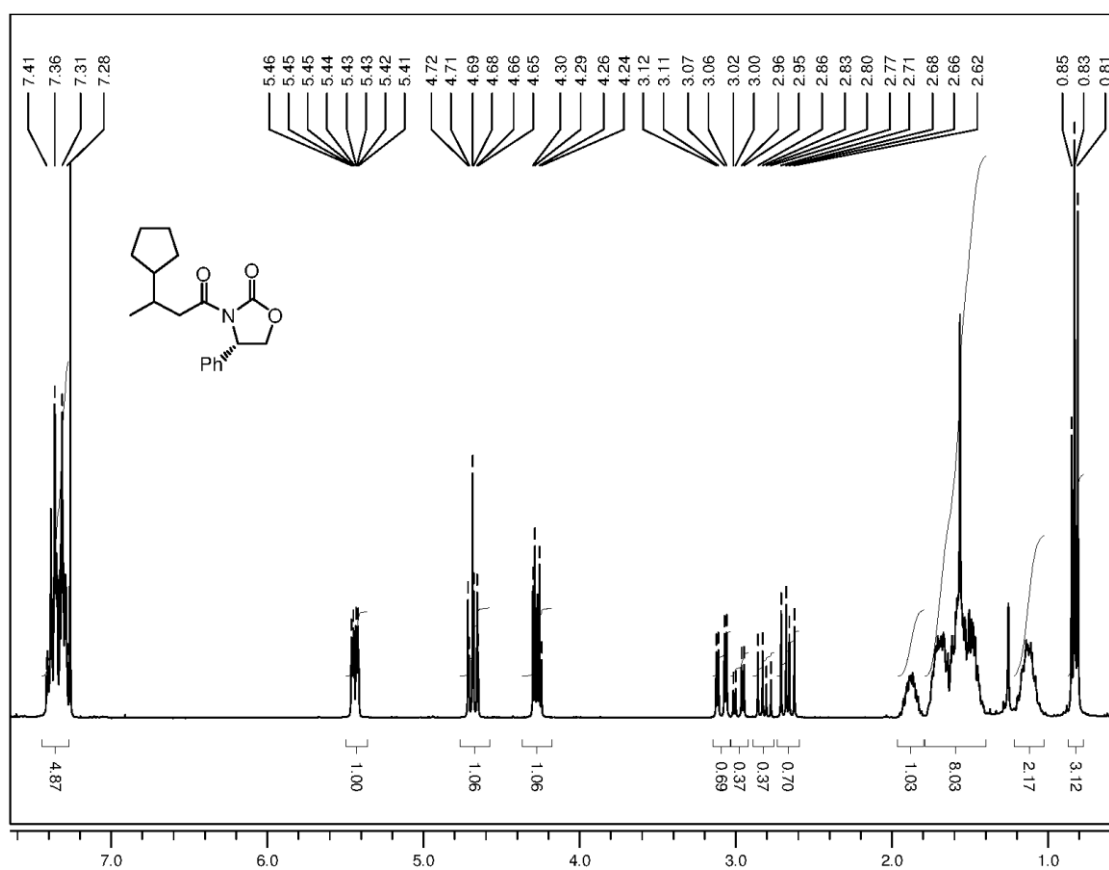
Pulse Sequence: DEPT  
Solvent: CDCl<sub>3</sub>  
Data collected on: Aug 27 2012

Temp. 25.0 C / 298.1 K  
Operator: vnmr1

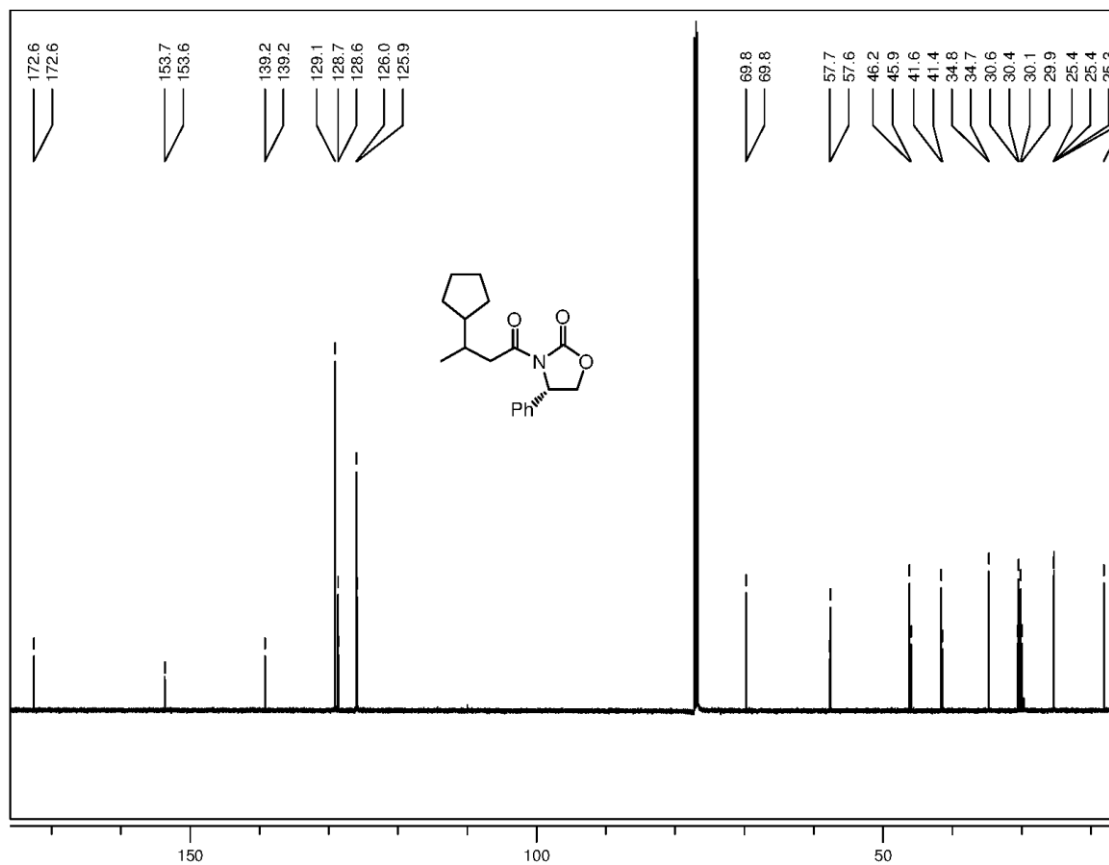
Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 37878.8 Hz  
256 repetitions  
OBSERVE C13, 150.8114495 MHz  
DECOUPLE H1, 599.7696724 MHz  
Power 40 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.7 Hz  
FT size 131072  
Total time 43 min



$^1\text{H}$  NMR for **7b**



$^{13}\text{C}$  NMR for **7b**



### DEPT for 7b

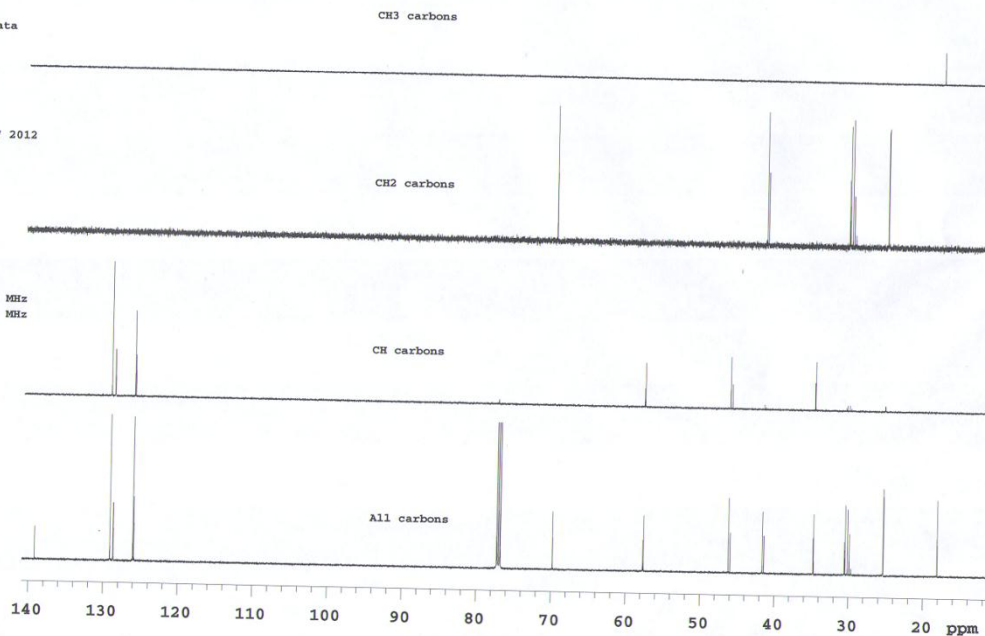
DEPT, 1508 MHz  
MD334  
CDCl<sub>3</sub>  
Aug 27 2012

Sample Name:  
MD334  
Data Collected on:  
Varian-NMR-vnmrs600  
Archive directory:  
/home/branc/vnmrsys/data  
Sample directory:  
MD334\_20120827\_01  
FidFile: data\_DEPT\_01

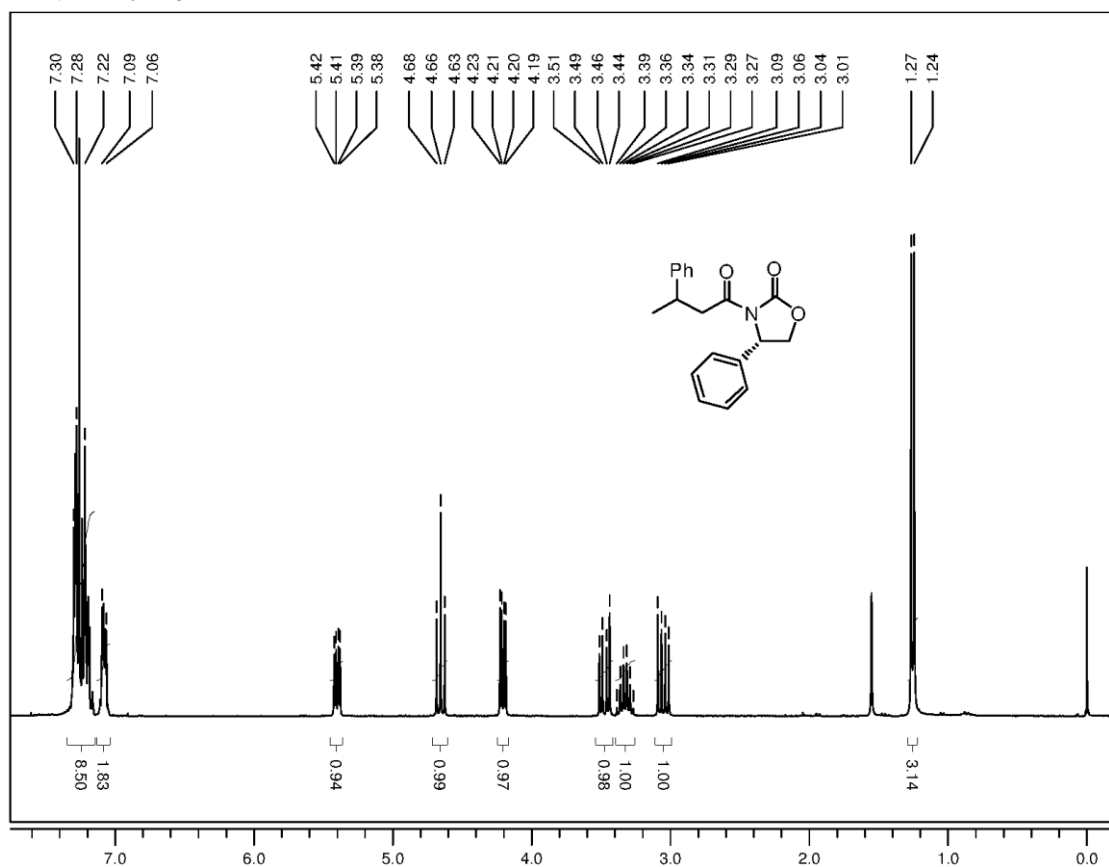
Pulse Sequence: DEPT  
Solvent: CDCl<sub>3</sub>  
Data collected on: Aug 27 2012

Temp. 25.0 C / 298.1 K  
Operator: vnmr1

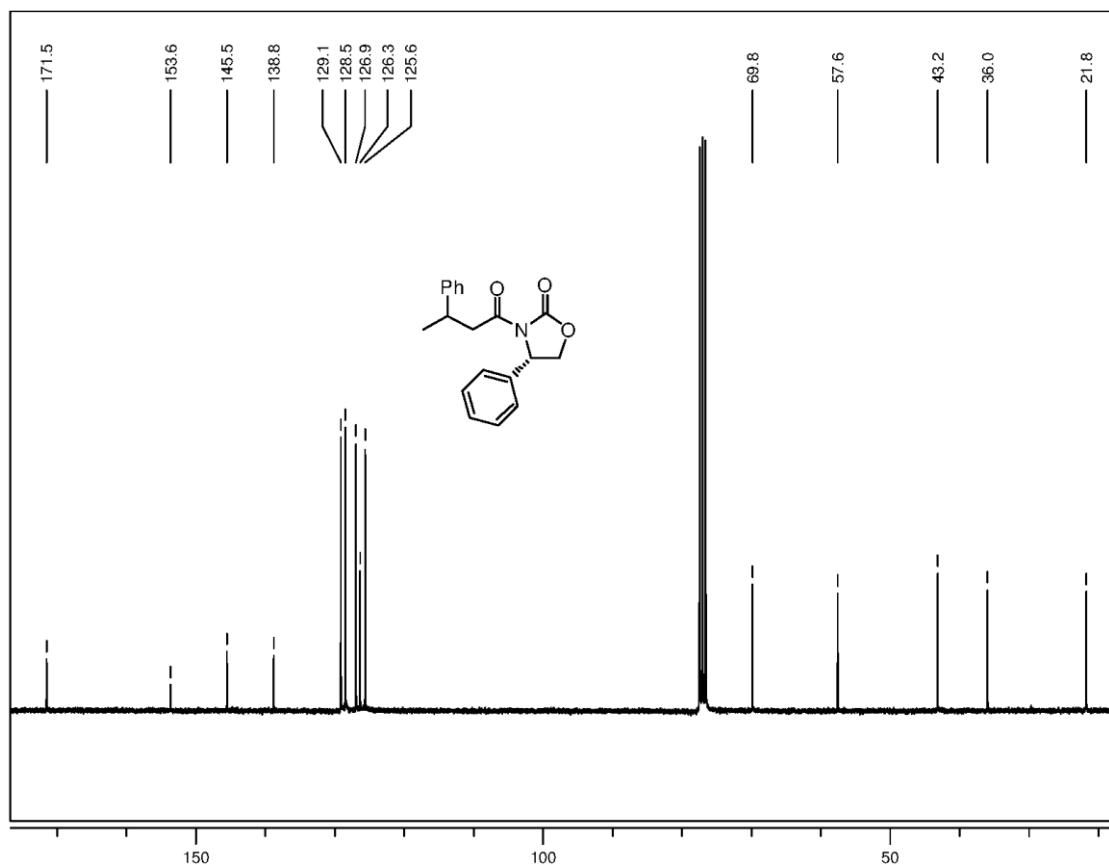
Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 37878.8 Hz  
512 repetitions  
OBSERVE C13, 150.8114500 MHz  
DECOUPLE H1, 599.7696724 MHz  
Power 40 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.5 Hz  
FT size 131072  
Total time 1 hr, 25 min



### <sup>1</sup>H NMR for 7c



### <sup>13</sup>C NMR for 7c



### DEPT for 7c

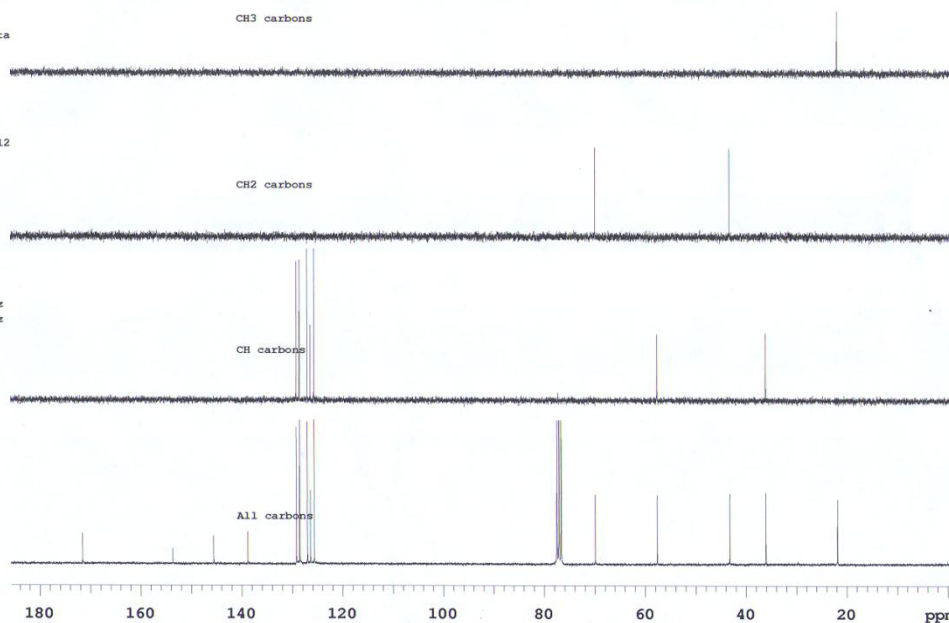
DEPT, 75 MHz  
MD 313  
CDCl3  
Jun 14 2012

Sample Name:  
MD313  
Data Collected on:  
VNMR300-vnmrs300  
Archive directory:  
/home/chempack/vnmrsys/data  
Sample directory:  
MD313\_20120614\_01  
FidFile: DEPT\_001

Pulse Sequence: DEPT  
Solvent: CDCl3  
Data collected on: Jun 14 2012

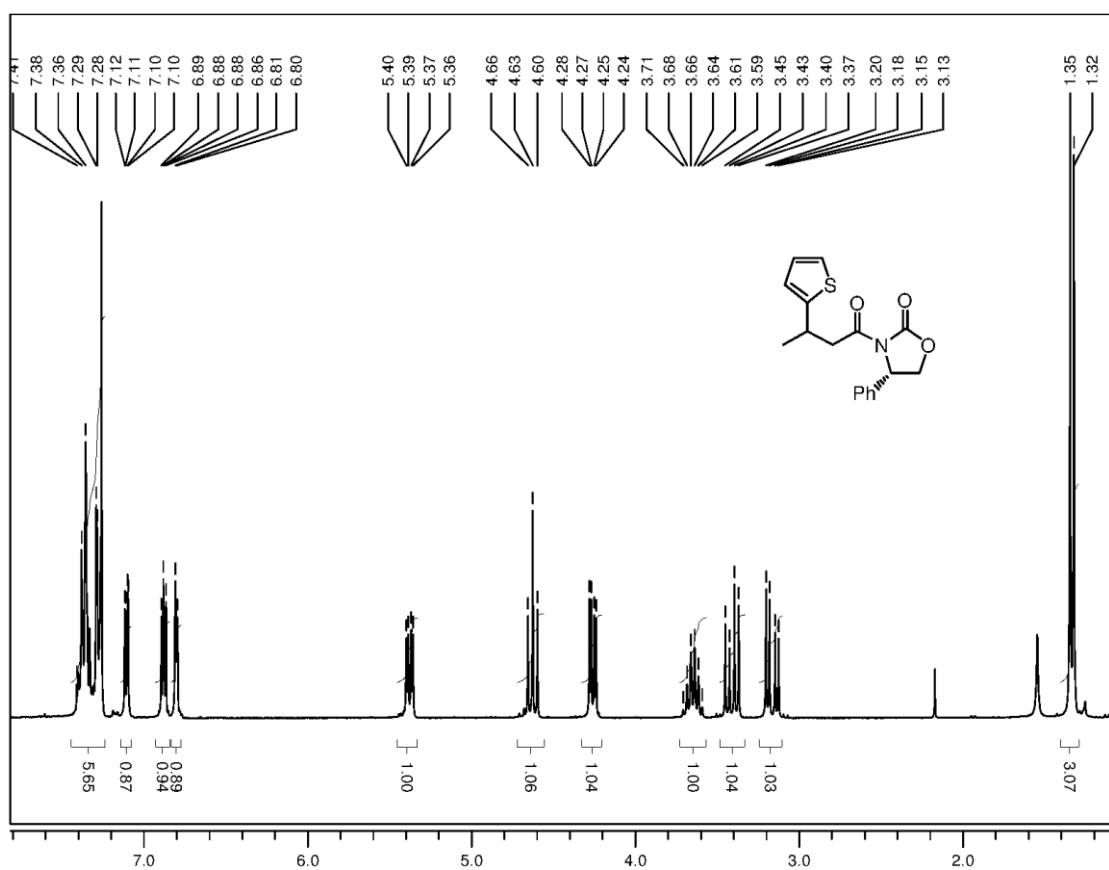
Temp. 25.0 C / 298.1 K  
Operator: chempack

Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 18939.4 Hz  
1024 repetitions  
OBSERVE C13, 75.4511791 MHz  
DECOUPLE H1, 300.0656104 MHz  
Power 37 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 0.5 Hz  
FT size 65536  
Total time 2 hr, 51 min

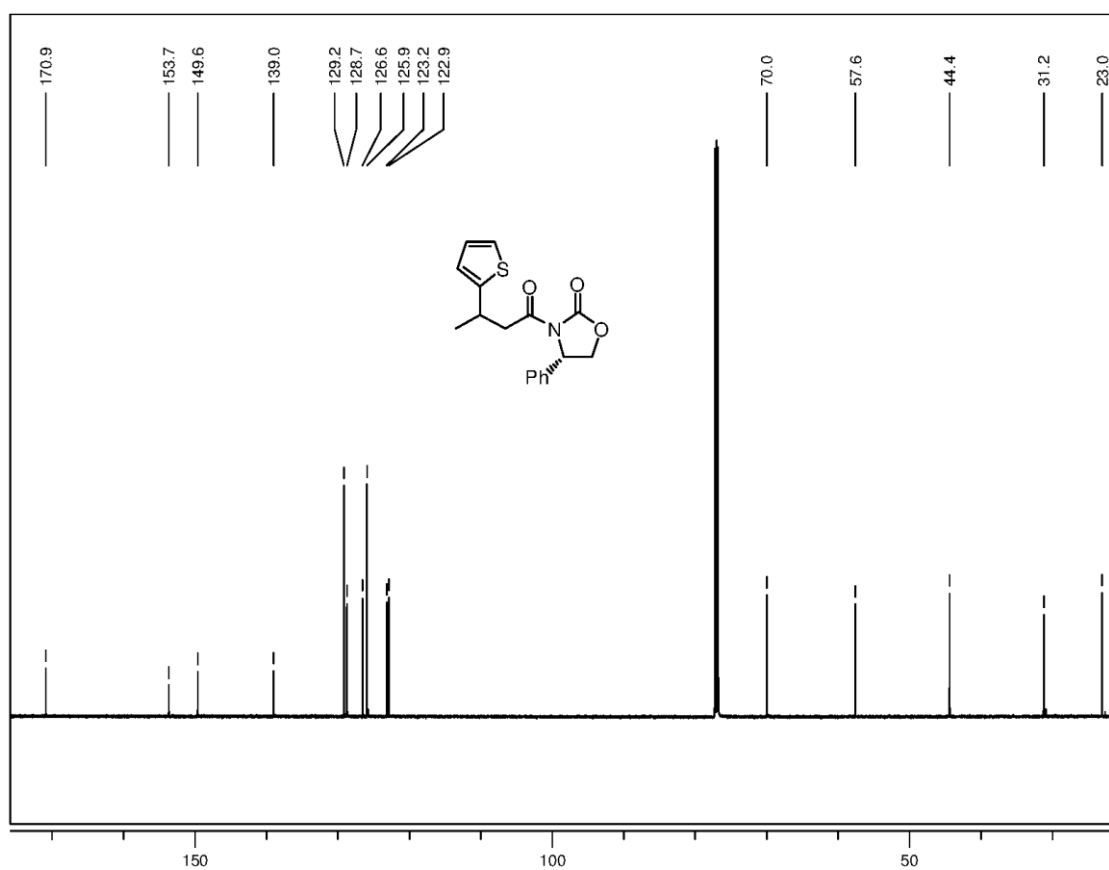


Plotname: DEPT\_001\_plot01

<sup>1</sup>H NMR for **7d**



<sup>13</sup>C NMR for **7d**



## DEPT for 7d

DEPT, 150.8 MHz  
MD-335-KR1  
CDCl3  
13 Sep 2012

Sample Name:  
MD-335-KR1  
Data Collected on:  
Varian-NMR-vnmrs600  
Archive directory:  
/home/brano/vnmrsays/data  
Sample directory:  
MD-335-KR1\_20120913\_01  
FidFile: data\_DEPT\_01

Pulse Sequence: DEPT  
Solvent: cdcl3  
Data collected on: Sep 13 2012

Temp. 25.0 C / 298.1 K  
Operator: vmr1

Relax. delay 1.000 sec  
Pulse 90.0 degrees  
Acq. time 1.500 sec  
Width 37878.8 Hz  
256 repetitions  
OBSERVE C13, 150.8114471 MHz  
DECOUPLE H1, 599.7696724 MHz  
Power 40 dB  
on during acquisition  
off during delay  
WALTZ-16 modulated  
DATA PROCESSING  
Line broadening 1.0 Hz  
FT size 131072  
Total time 43 min

