Electronic Supplementary Information

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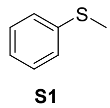
1. General information

All reactions were carried out in sealed air using oven dried glassware. Acetone, sodium chloride, graphite felt, platinum electrodes are all available from commercial sources. Deionized water is obtained by ultra pure water machine. The electrochemical instrument is HONGSHENGFENG DPS-305BM. Column chromatography was performed on silica gel (200-300 mesh). NMR spectra were recorded in $CDCl_3$ on 500 MHz spectrometers. ^1H NMR chemical shifts (δ) are reported in parts per million relative to tetramethylsilane (0 ppm). The following abbreviations are used for multiplicities: s = singlet, d = doublet, t = triplet, q = quartet, dd = doublet of doublets, and dt = doublet of triplets, m = multiplet. HRMS were obtained on an Ultima Global spetrometer with an ESI source. Melting points are uncorrected.

2. Synthesis of sulfides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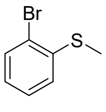
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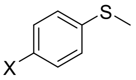
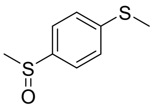


S3, X = Br **S4**, X = NO_2
S5, X = Cl **S6**, X = COOH
S7, X = OMe **S8**, X = $OCCH_3$
S9, X = SMe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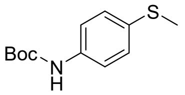
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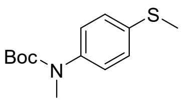
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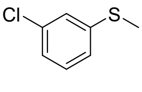
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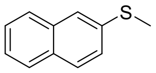
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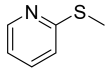
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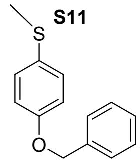
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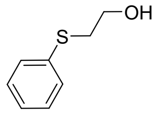
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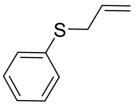
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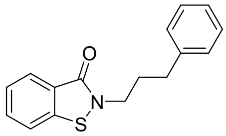
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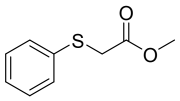
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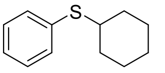
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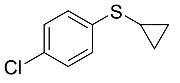
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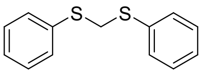
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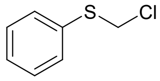
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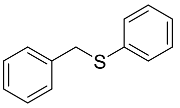
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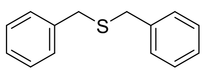
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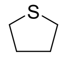
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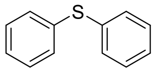
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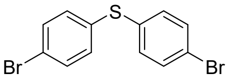
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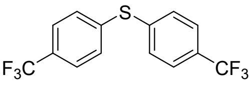
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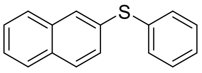
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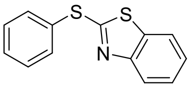
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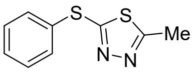
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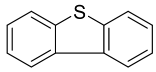
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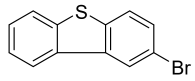
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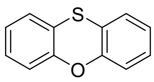
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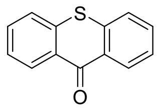
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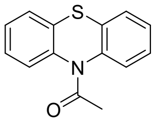
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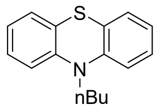
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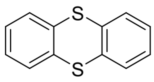
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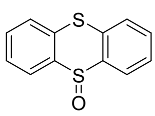
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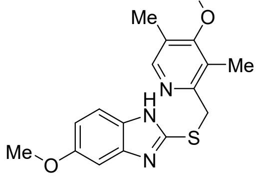
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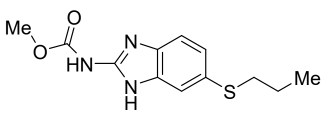
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The starting materials sulfides **S11-S12**[1], **S14**[2], **S16**[3], **S20**[4], **S21**[5], **S22**[6], **S30**[7], **S31**[8], **S32**[9], **S33**[10], **S38**[11], **S39**[12] were prepared according to literature procedure. Others were all obtained from commercial sources.

3. General procedure

Figure S1. Components required for the reaction

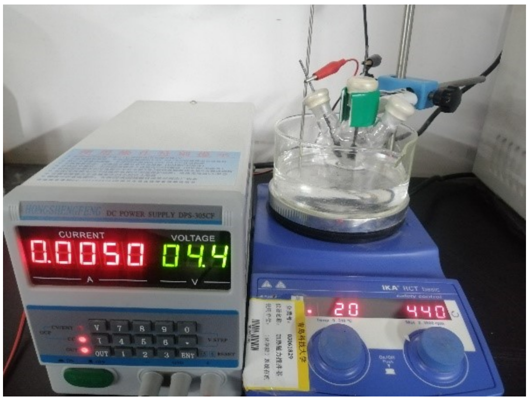
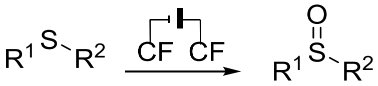


Figure S2. Typical reaction set up



To the mixed solution of acetone (4.5 mL) and water (0.5 mL), sulfide (0.2 mmol, 1 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 °C in air for 2-4 hours. After the reaction (monitored by TLC), the reaction system was dried with anhydrous $MgSO_4$, filtered and concentrated under reduced pressure. The residue was purified by silica gel column chromatography and eluted with petroleum ether and ethyl acetate.

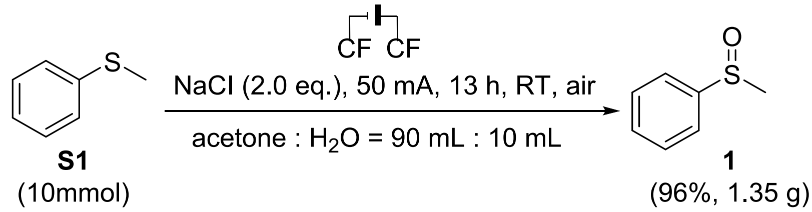
4. Gram-scale reaction

Figure S3. Components required for gram-scale reaction

At the beginning of the reaction

At the end of the reaction

Figure S4. Typical reaction set up for gram-scale reaction



To the mixed solution of acetone (90 mL) and water (10 mL), thioanisole (10 mmol, 1 equivalent) and sodium chloride (20 mmol, 2 equivalent) were added. Equipped with graphite felt (20 × 10 × 2 mm) as anode and graphite felt (20 × 10 × 2 mm) as cathode, non-separation cell device. The reaction mixture was stirred in air at room temperature for 13 hours at a constant current of 50 mA. After the reaction (monitored by TLC), acetone was separated by rotary evaporation, and the residual liquid was extracted by dichloromethane. Anhydrous $MgSO_4$ drying organic phase, filtered and concentrated under reduced pressure. The product was purified by silica gel column chromatography, eluted with petroleum ether and ethyl acetate, and the light yellow oil was obtained in 96% yield (1.35 g).

5. Decagram-scale reaction

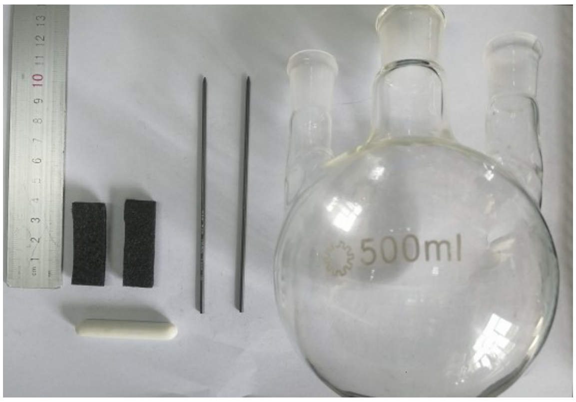
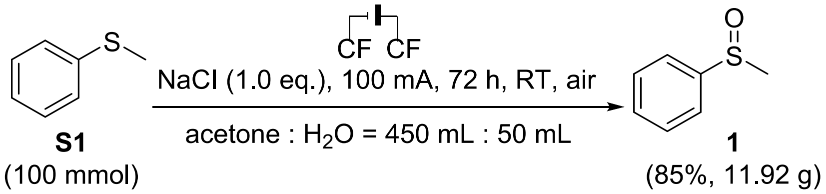


Figure S5. Components required for the decagram-scale reaction

At the beginning of the reaction At the end of the reaction

Figure S6. Typical reaction set up for the decagram-scale reaction



To the mixed solution of acetone (450 mL) and water (50 mL), thioanisole (100 mmol, 1 equivalent) and sodium chloride (100 mmol, 1equivalent) were added. Equipped with graphite felt (40 × 15 × 2 mm) as anode and graphite felt (40 × 15 × 2 mm) as cathode, non-separation cell device. The reaction mixture was stirred in air at room temperature for 72 hours at a constant current of 100 mA. After the reaction (monitored by TLC), acetone was separated by rotary evaporation, and the residual liquid was extracted by dichloromethane. Anhydrous $MgSO_4$ drying organic phase, filtered and concentrated under reduced pressure. The product was purified by silica gel column chromatography, eluted with petroleum ether and ethyl acetate, and the light yellow oil was obtained in 85% yield (11.92 g).

Figure S7. Pure product

6. Detection of product by GC anlysis and NMR

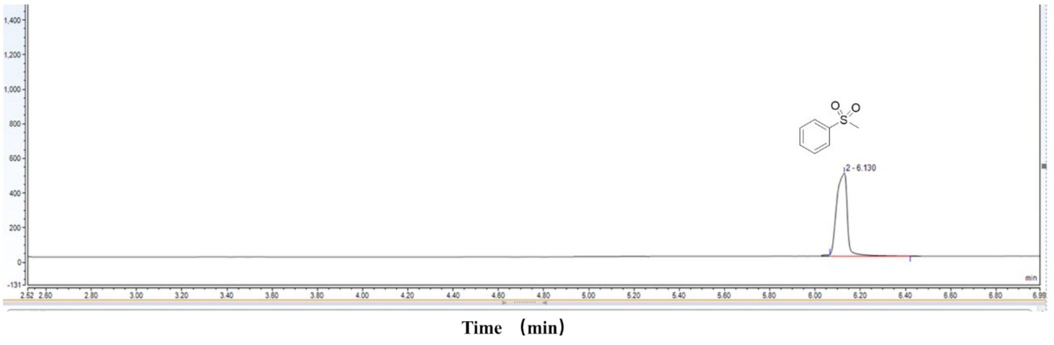


Figure S8 GC of methyl phenyl sulfone

Methyl phenyl sulfone (0.5 mmol) standard was dissolved in acetone (1 mL), and the picture above was obtained by GC

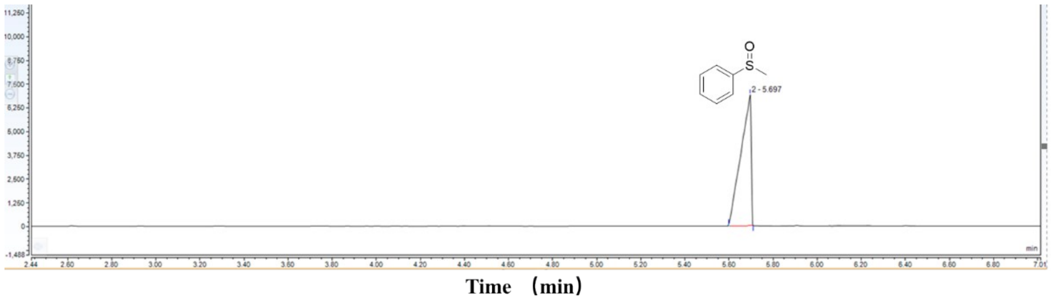


Figure S9 GC of methyl phenyl sulfoxide

Methyl phenyl sulfoxide (0.5 mmol) standard was dissolved in acetone (1 mL), and the picture above was obtained by GC

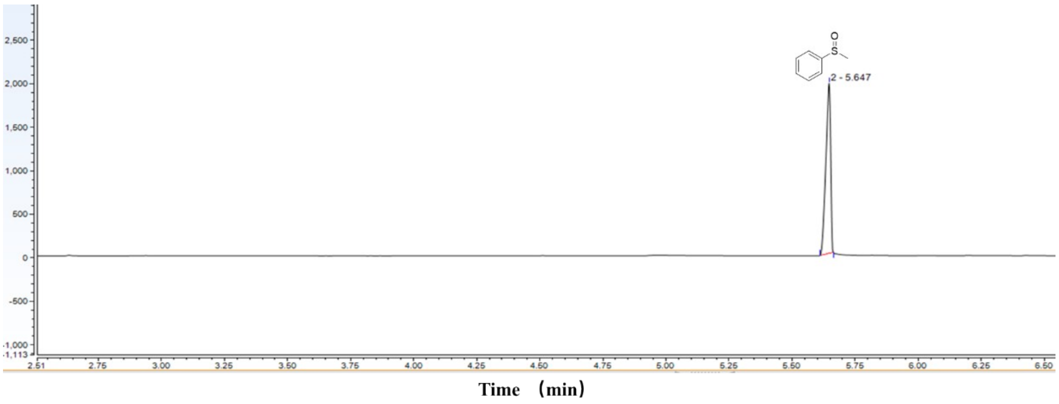


Figure S10 GC of reaction system

After the reaction, the system was dried with anhydrous magnesium sulfate, the solid was separated by suction filtration, the solvent was separated by rotary evaporation, acetone (1 mL) was added, and the picture above was obtained by GC

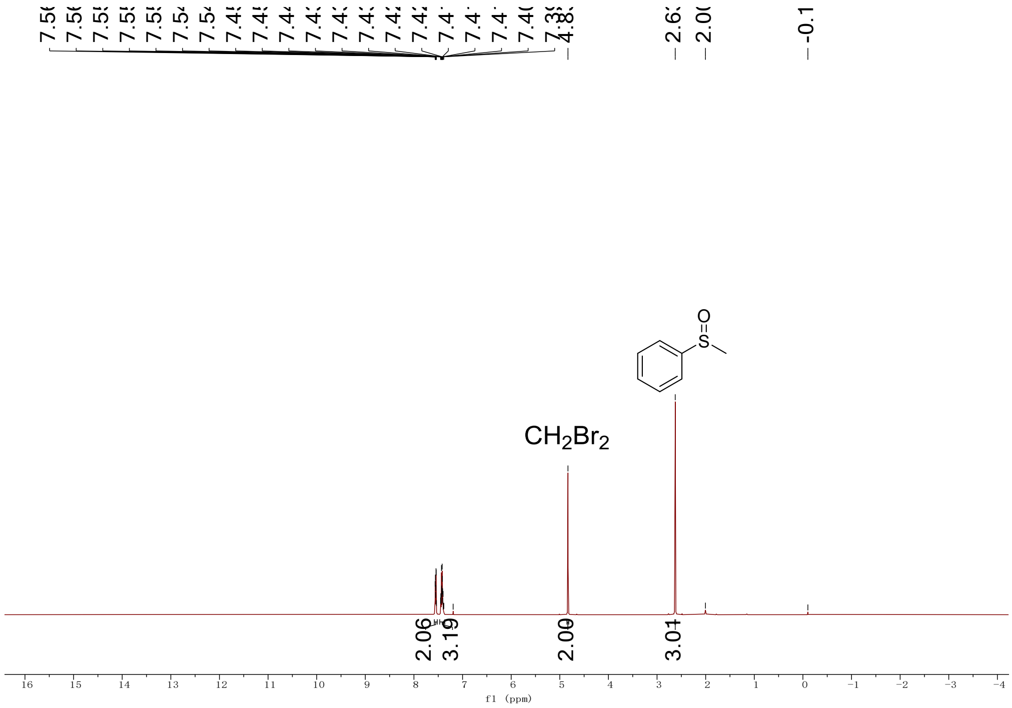


Figure S11 *In-situ* ^{1}H NMR of the reaction system

After the reaction, the system was dried over anhydrous $MgSO_4$, the solid was separated by suction filtration, the solvent was separated by rotary evaporation, CH_2Br_2(14 μL) and $CDCl_3$ were added, and the ^{1}H NMR was detected to obtain the above figure.

7. SEM image of graphite

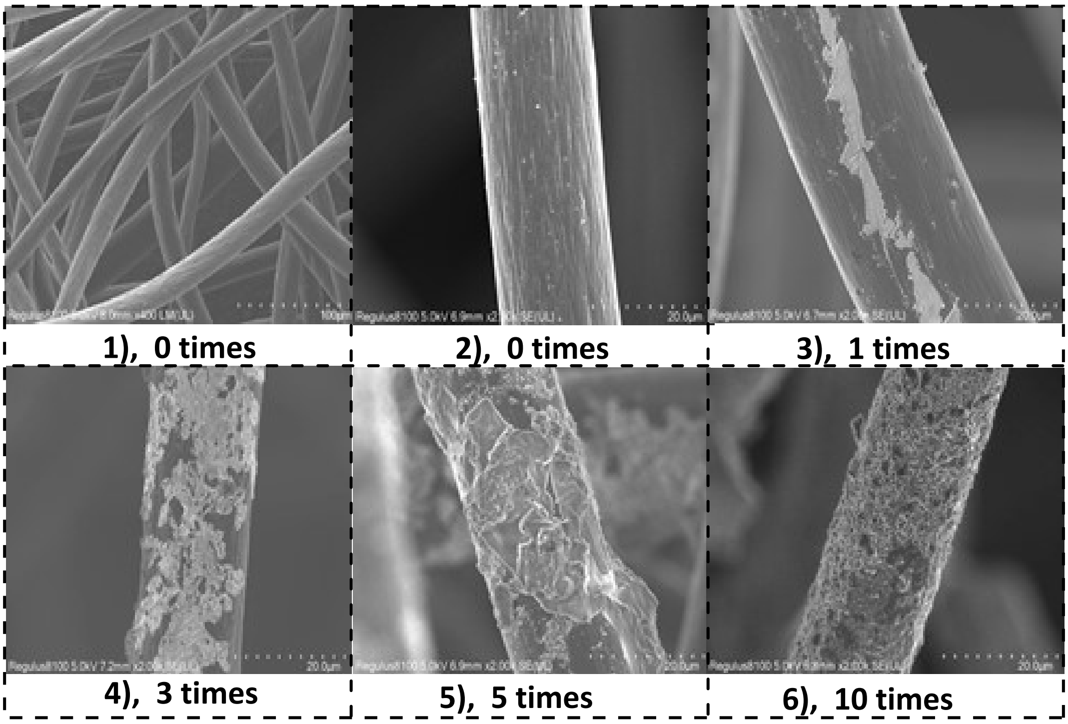

1), 0 times
2), 0 times
3), 1 times
4), 3 times
5), 5 times
6), 10 times

Figure S12 SEM image of graphite

Place the anode graphite felt with different cycles in an oven at 100 °C, dry for 4 hours, and observe under SEM.

8. Cyclic voltammetry study

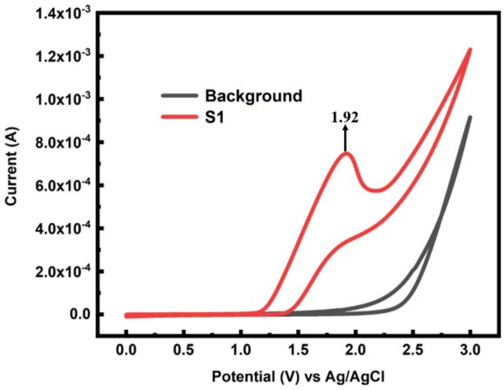


Figure S13. Cyclic voltammogram of **S1**

General procedure for cyclic voltammetry (CV): Cyclic voltammograms of **S1** (0.2 mmol) were performed in a three-electrode cell at room temperature. The working electrode was a steady glassy carbon, the counter electrode was a platinum wire, and the reference was an Ag/AgCl electrode submerged in saturated aqueous KCl solution. Mixed solvent (acetone = 4.5 mL, H_2O = 0.5 mL) containing $LiClO_4$ (0.2 mmol) were poured into the electrochemical cell in cyclic voltammetry experiments. The scan rate was 100 mV/s, ranging from 0.0 V to 3.0 V.

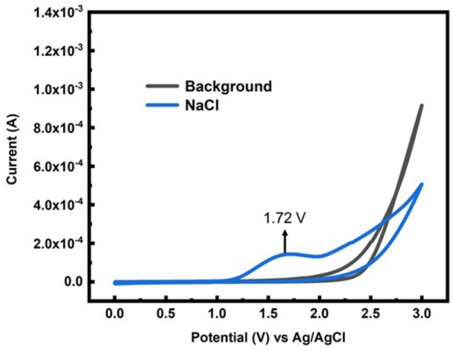


Figure S14. Cyclic voltammogram of NaCl

General procedure for cyclic voltammetry (CV): Cyclic voltammograms of NaCl (0.8 mmol) were performed in a three-electrode cell at room temperature. The working electrode was a steady glassy carbon, the counter electrode was a platinum wire, and the reference was an Ag/AgCl electrode submerged in saturated aqueous KCl solution.

Mixed solvent (acetone = 4.5 mL, H_2O = 0.5 mL) containing $LiClO_4$ (0.2 mmol) were poured into the electrochemical cell in cyclic voltammetry experiments. The scan rate was 100 mV/s, ranging from 0.0 V to 3.0 V.

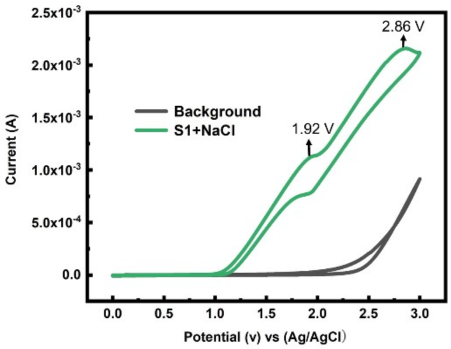


Figure S15. Cyclic voltammogram of protocol

General procedure for cyclic voltammetry (CV): Cyclic voltammograms of **S1** (0.2 mmol) and NaCl (0.8 mmol) were performed in a three-electrode cell at room temperature. The working electrode was a steady glassy carbon, the counter electrode was a platinum wire, and the reference was an Ag/AgCl electrode submerged in saturated aqueous KCl solution. Mixed solvent (acetone = 4.5 mL, H_2O = 0.5 mL) containing $LiClO_4$ (0.2 mmol) were poured into the electrochemical cell in cyclic voltammetry experiments. The scan rate was 100 mV/s, ranging from 0.0 V to 3.0 V.

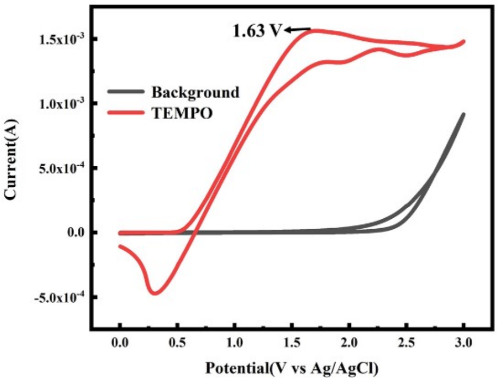


Figure S16. Cyclic voltammogram of TEMPO

General procedure for cyclic voltammetry (CV): Cyclic voltammograms of TEMPO (0.8 mmol) were performed in a three-electrode cell at room temperature. The working electrode was a steady glassy carbon, the counter electrode was a platinum wire, and the reference was an Ag/AgCl electrode submerged in saturated aqueous KCl solution. Mixed solvent (acetone = 4.5 mL, H_2O = 0.5 mL) containing $LiClO_4$ (0.2 mmol) were poured into the electrochemical cell in cyclic voltammetry experiments. The scan rate was 100 mV/s, ranging from 0.0 V to 3.0 V.

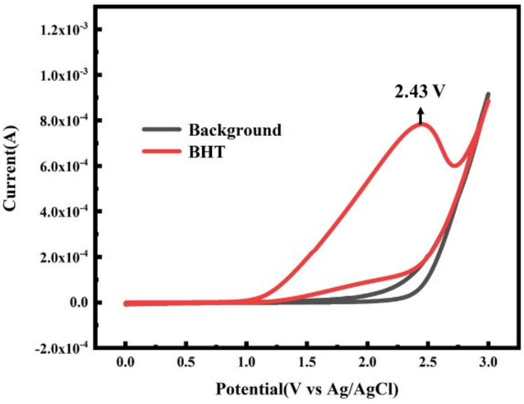


Figure S17. Cyclic voltammogram of BHT

General procedure for cyclic voltammetry (CV): Cyclic voltammograms of BHT (0.8 mmol) were performed in a three-electrode cell at room temperature. The working electrode was a steady glassy carbon, the counter electrode was a platinum wire, and the reference was an Ag/AgCl electrode submerged in saturated aqueous KCl solution. Mixed solvent (acetone = 4.5 mL, H_2O = 0.5 mL) containing $LiClO_4$ (0.2 mmol) were poured into the electrochemical cell in cyclic voltammetry experiments. The scan rate was 100 mV/s, ranging from 0.0 V to 3.0 V.

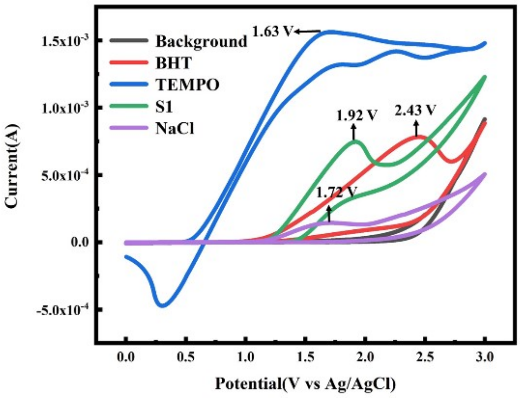
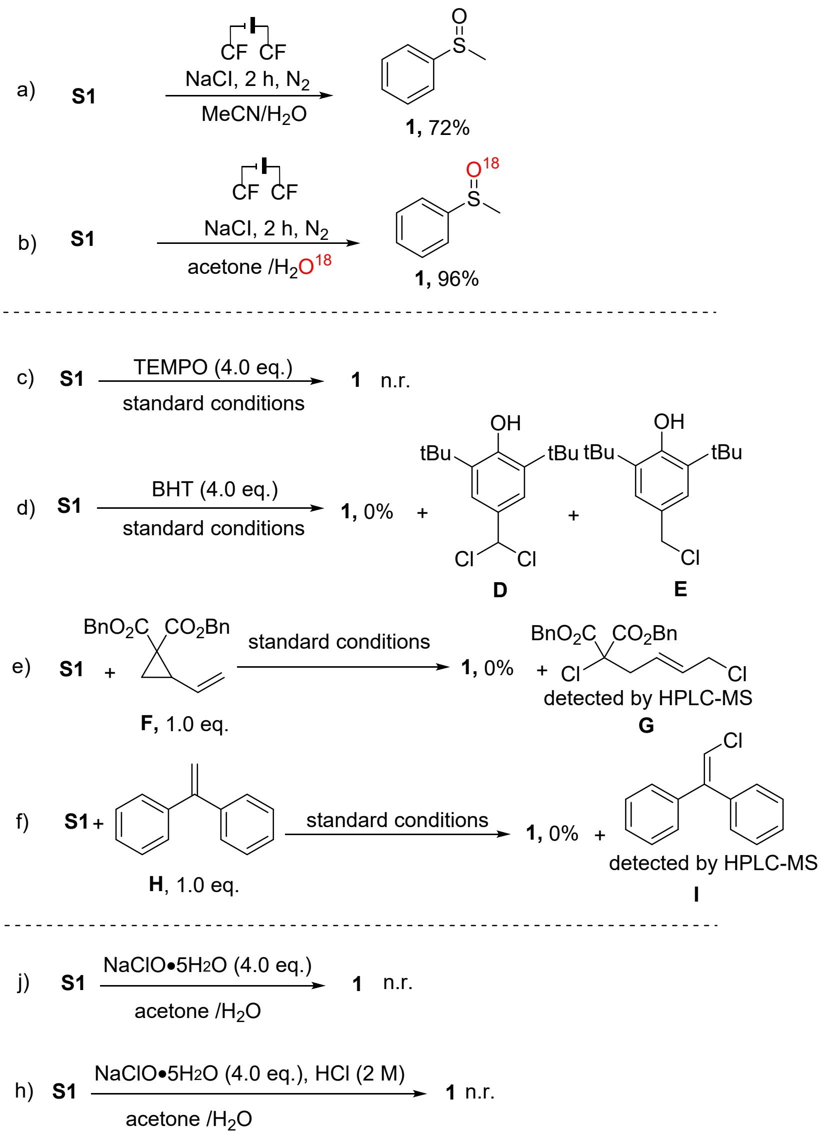


Figure S18. Cyclic voltammogram of BHT, TEMPO, **S1** and NaCl

9. Control experiments



a) To the mixed solution of MeCN (4.5 mL) and H_2O (0.5 mL), sulfide **S1**(0.2 mmol, 1 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 ^{o}C in N_2 for 2 hours. After the reaction (monitored by TLC), the reaction system was dried with anhydrous $MgSO_4$, filtered and concentrated under reduced pressure. The residue was purified by silica gel column chromatography and eluted with petroleum ether and ethyl acetate and the light yellow oil was obtained in

72% yield (0.0201 g).

b) To the mixed solution of acetone (4.5 mL) and H_2O^{18} (0.5 mL), sulfide **S1**(0.2 mmol, 1 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 ^{o}C in N_2 for 2 hours. After the reaction (monitored by TLC), the reaction system was dried with anhydrous $MgSO_4$, filtered and concentrated under reduced pressure. The residue was purified by silica gel column chromatography and eluted with petroleum ether and ethyl acetate and the light yellow oil was obtained in 96% yield (0.0273g). **HRMS** (ESI-TOF, [M + H$^+$]): calcd for $C_7H_8{}^{18}OS$, 143.0411, found 143.0414. $C_7H_8{}^{16}OS$: $C_7H_8{}^{18}OS$ = 1: 10

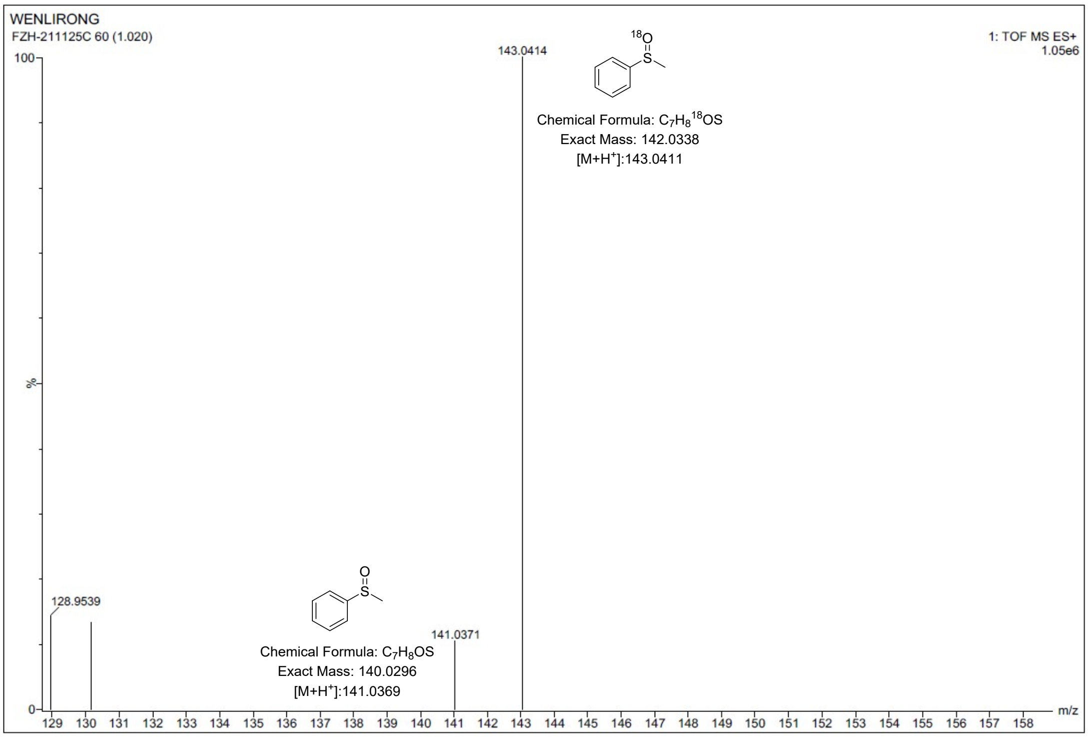
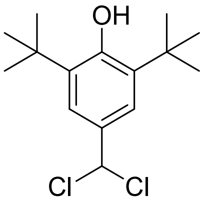


Figure S19 **HRMS** (ESI-TOF, [M + H$^+$]): calcd for $C_7H_8{}^{18}OS$

c) To the mixed solution of acetone (4.5 mL) and H_2O (0.5 mL), sulfide **S1**(0.2 mmol, 1 equivalent), TEMPO (0.8 mmol, 4.0 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 ^{o}C in air for 2 hours.

Finally, it was found that the reaction did not occur.

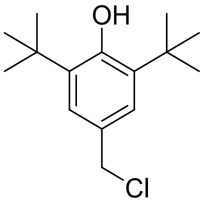
d) To the mixed solution of acetone (4.5 mL) and H_2O (0.5 mL), sulfide **S1**(0.2 mmol, 1 equivalent), BHT (0.8 mmol, 4.0 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 ^{o}C in air for 2 hours. After the reaction (monitored by TLC), the reaction system was dried with anhydrous $MgSO_4$, filtered and concentrated under reduced pressure. The residue was purified by silica gel column chromatography and eluted with petroleum ether and ethyl acetate. The target product was not obtained, and **D** and **E** which were difficult to separate by silica gel column chromatography were obtained.



D

^{1}**H NMR** (500 MHz, $CDCl_3$)) δ 6.80 (s, 2H), 5.04 (s, 1H), 1.40 (s, 18H).

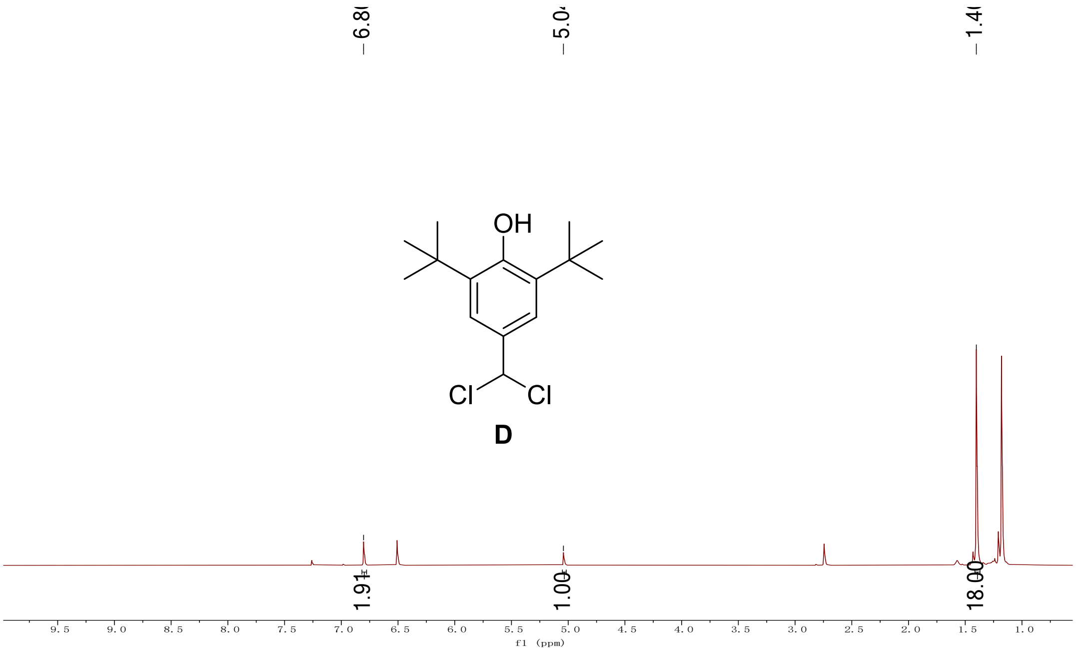
HRMS (ESI-TOF, [M + Na^+]): calcd for $C_{15}H_{23}Cl_2O$, 311.0940, found 311.0946

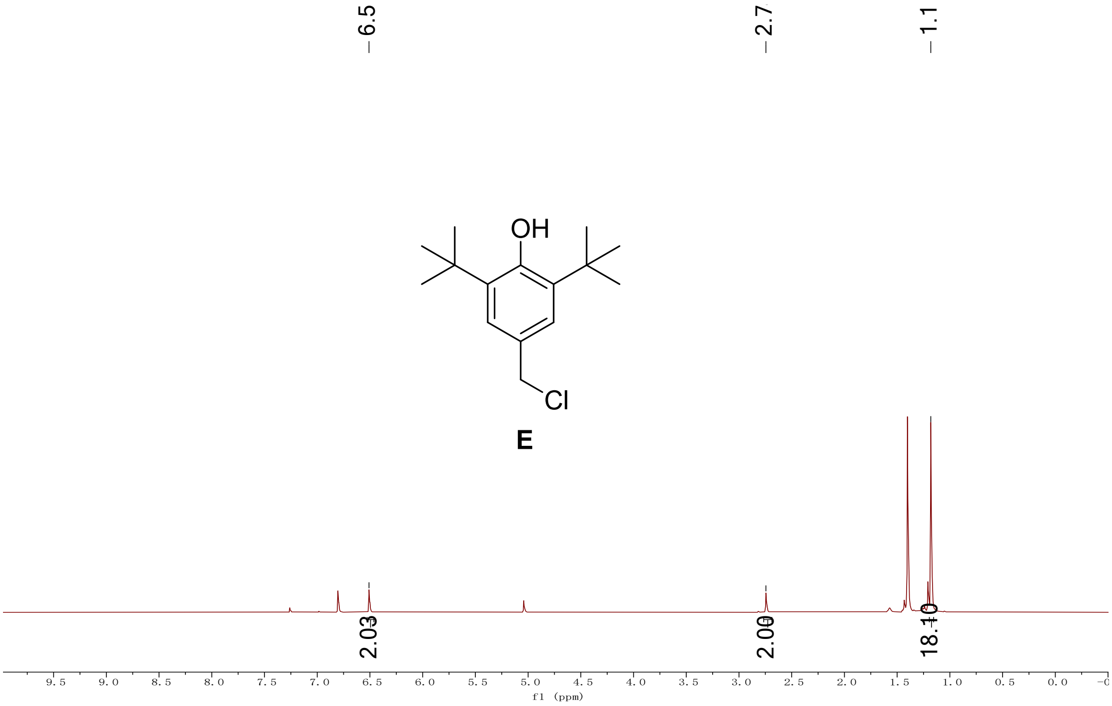


E

^{1}**H NMR** (500 MHz, $CDCl_3$)) δ6.51 (s, 2H), 2.74 (s, 2H), 1.18 (s, 18H).

HRMS (ESI-TOF, [M + H^+]): calcd for $C_{15}H_{23}ClO$, 255.1510, found 255.1503.


6.8
5.0
1.4
OH
Cl
Cl
D
1.91
1.00
18.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
f1 (ppm)


6.5
2.7
1.1
OH
Cl
E
2.03
2.00
18.10
9.5
9.0
8.5
8.0
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7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

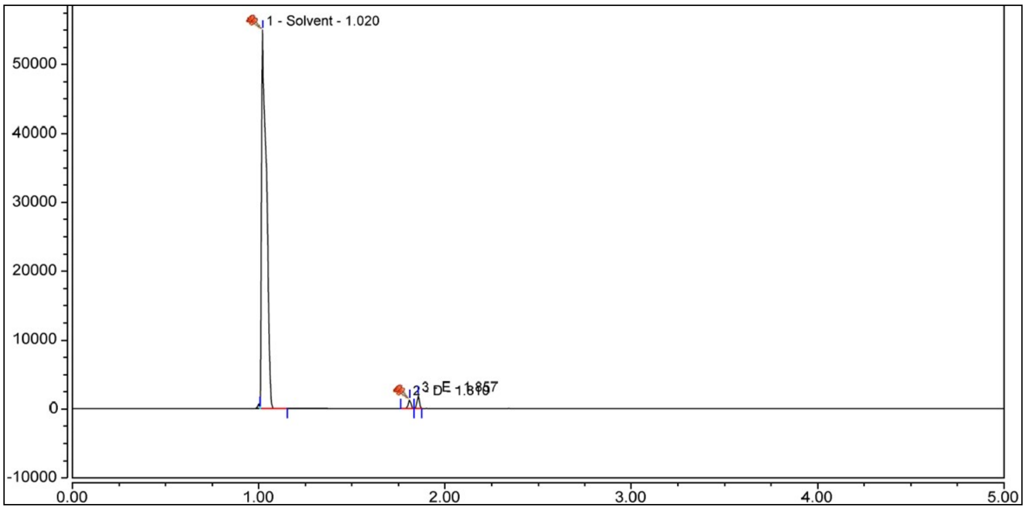


Figure S20 Gas chromatography by Trace1300E

Integral result						
Serial number	Peak name	Retention time（min）	Peak area（pA*min）	Peak height（pA）	Relative peak area(%)	Relative peak height(%)
1	Solvent	1.020	1664.574	55007.570	97.10	94.53
2	**D**	1.810	27.739	1306.723	1.27	2.25
3	**E**	1.857	27.902	1878.692	1.63	3.23

BHT was used to participate in the system reaction to obtain two products **D** and **E** which were difficult to be separated by column chromatography. After gas chromatography, the ratio was 1.27% : 1.63% (44:56).

e) To the mixed solution of acetone (4.5 mL) and H_2O (0.5 mL), sulfide **S1**(0.2 mmol, 1 equivalent), vinyl cyclopropane derivative **F** (0.2 mmol, 1 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 ^{o}C in air for 2 hours. Detected **G** by HPLC-MS. **HRMS** (ESI-TOF, [M + Na^{+}]): calcd for $C_{21}H_{20}Cl_2O_4$ 429.0631, found 429.0629.

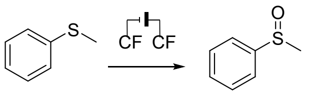
f) To the mixed solution of acetone (4.5 mL) and H_2O (0.5 mL), sulfide **S1**(0.2 mmol, 1 equivalent), 1,1-Diphenylethylene **H** (0.2 mmol, 1 equivalent) and sodium chloride (0.8 mmol, 4 equivalent) were added. Equipped with graphite felt (10 × 10 × 2 mm) as anode and graphite felt (10 × 10 × 2 mm) as cathode, non-separating electrolytic cell device. The reaction mixture was stirred at constant current of 5 mA at 20 ^{o}C in air for

2 hours. Detected **I** by HPLC-MS. **HRMS** (ESI-TOF, [M + H^+]): calcd for $C_{14}H_{11}Cl$ 215.0622, found 215.0630.

j) To the mixed solution of acetone (4.5 mL) and H_2O (0.5 mL), **S1** (0.2 mmol, 1 equivalent), NaClO (0.8 mmol, 4.0 equivalent). The reaction mixture was stirred at 20 ^{o}C in air for 2 hours. Finally, it was found that the reaction did not occur.

h) To the mixed solution of acetone (4.5 mL) and HCl (2 M, 0.5 mL), **S1** (0.2 mmol, 1 equivalent), NaClO (0.8 mmol, 4.0 equivalent). The reaction mixture was stirred at 20 ^{o}C in air for 2 hours. Finally, it was found that the reaction did not occur.

Table 1 Table the effect of Cl ion

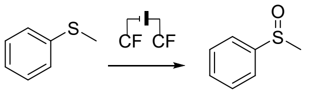


S1 **1**

Entry	**Deviation from standard conditions**[a]	**Yield**[b] **(%)**
1	K**Cl** as the electrolyte	93
2	Mg**Cl_2**as the electrolyte	93
3	NH_4**Cl** as the electrolyte	86
4	Li**Cl** as the electrolyte	87
5	Zn**Cl_2** as the electrolyte	80
6	$^{n}Bu_4N$**Cl** as the electrolyte	88
7	Me_4N**Cl** as the electrolyte	87
8	**Na**Br as the electrolyte	40
9	**Na**Ts as the electrolyte	77
10	**Na**NO_3 as the electrolyte	45
11	$NaNO_3$ as the electrolyte, catalytic amount of Na**Cl**	93[c]
12	$^{n}Bu_4NPF_6$ as the electrolyte	54
13	$^{n}Bu_4NPF_6$ as the electrolyte, catalytic amount of Na**Cl**	88[c]

[a]Standard conditions: CF anode, CF cathode, undivided cell, constant current = 5 mA, **S1** (0.2 mmol), electrolyte (4.0 eq.), acetone = 4.5 mL, H_2O = 0.5 mL, 20 ^{o}C, air, 2 h (1.86 F mol^{-1}). [b]Isolated yields. [c]NaCl (0.2 eq.)

Table 2 Carbon-based electrode control experiments

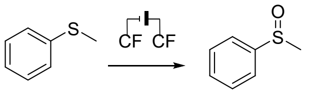


S1 **1**

Entry	Deviation from standard conditions[a]	Yield[b] (%)
1	Carbon stick as anode	68
2	RVC[c] as anode	58
3	GCE[d] as anode	70

[a]Standard conditions: CF cathode, undivided cell, constant current = 5 mA, **S1** (0.2 mmol), NaCl (4.0 eq.), acetone = 4.5 mL, H_2O = 0.5 mL, 20 ^{o}C, air, 2 h (1.86 F mol^{-1}). [b]Isolated yields. [c]Reticulated vitreous carbon. [d]Glassy carbon electrode.

Table 3 Solvent water content control experiments



S1 **1**

Entry	Deviation from standard conditions[a]	Yield[b] (%)
1	Acetone: H_2O = 0.0 mL: 5.0 mL	0
2	Acetone:H_2O = 2.5 mL: 2.5 mL	59
3	Acetone:H_2O =3.0 mL: 2.0 mL	63
4	Acetone:H_2O = 4.0 mL: 1.0 mL	75
5	Acetone:H_2O = 4.2 mL: 0.8 mL	81
6	Acetone:H_2O = 4.4 mL: 0.6 mL	92
7	Acetone:H_2O = 4.5 mL: 0.5 mL	96
8	Acetone:H_2O = 4.6 mL: 0.4 mL	81
9	Acetone:H_2O = 4.8 mL: 0.2 mL	68

[a]Standard conditions: CF anode, CF cathode, undivided cell, constant current = 5 mA, **S1** (0.2 mmol), NaCl (4.0 eq.), acetone = 4.5 mL, H_2O = 0.5 mL, 20 ^{o}C, air, 2 h (1.86 F mol^{-1}). [b]Isolated yields.

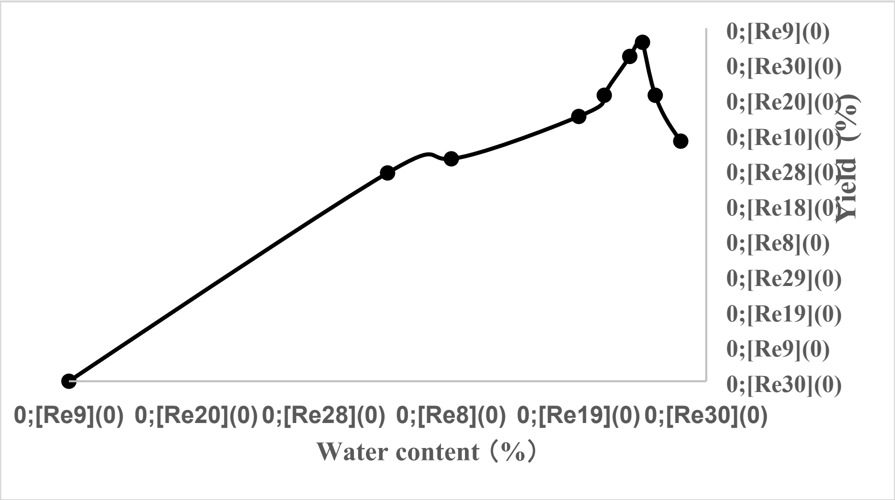


Figure S21 Solvent water content control experiments

10. NaClO probe experiments

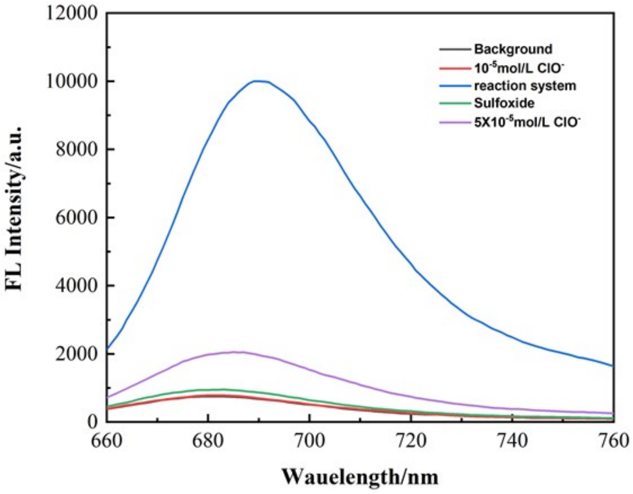


Figure S22 Fluorescence analysis method to measure NaClO

Background: 1 mL of mixed solution (S1 = 0.2 mmol, NaCl = 0.8 mmol, acetone = 4.5 mL, H_2O = 0.5 mL) was added NaClO fluorescent indicator (1 μL).

10^{-5}mol/L ClO^-: 1 mL of mixed solution (S1 = 0.2 mmol, NaCl = 0.8 mmol, acetone = 4.5 mL, H_2O = 0.5 mL) was added NaClO solution (1mmol/L, 10μL) and NaClO fluorescent indicator (1 μL).

Reaction system: The solution after the reaction under standard conditions.

Sulfoxide: 1 mL of mixed solution (1 = 0.2 mmol, NaCl = 0.8 mmol, acetone = 4.5 mL, H_2O = 0.5 mL) was added NaClO fluorescent indicator (1 μL).

5X10^{-5}mol/L ClO^-: 1 mL of mixed solution (S1 = 0.2 mmol, NaCl = 0.8 mmol, acetone

= 4.5 mL, H_2O = 0.5 mL) was added NaClO solution (1mmol/L, 50μL) and NaClO fluorescent indicator (1 μL).

Figure S23 Experiment of pH test paper

11. Detection of H_2 by GC analysis

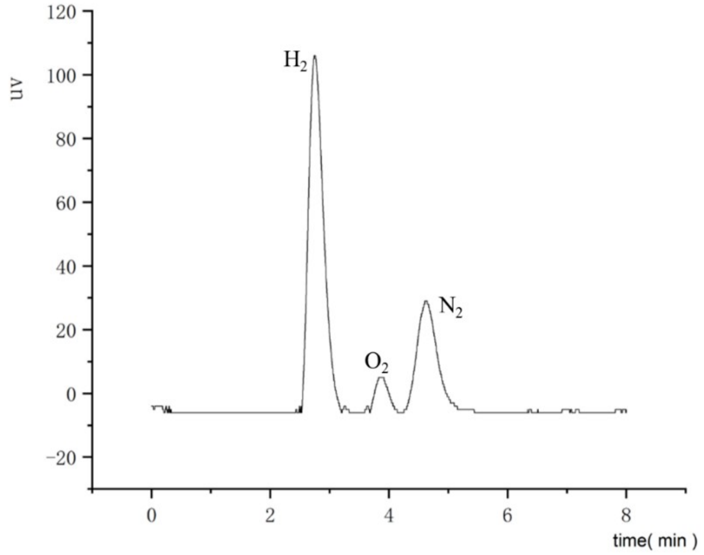
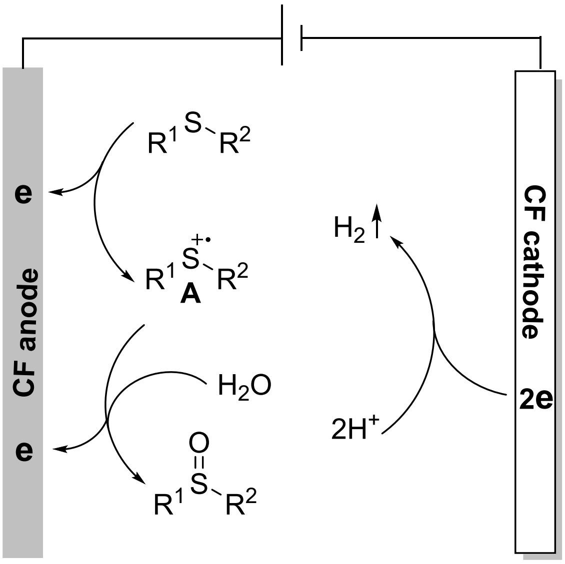


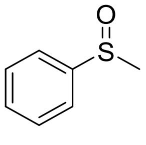
Figure S24 Collected gas from gram-scale experiment

12. Another possible mechanism.



Intermediate **A** was easily produced by single electron transfer from sulfide. Then H_2O reacted with intermediate **A** to form sulfoxide. Finally, hydrogen gas was released from the cathode.[13]

13. Characterization data of sulfoxide

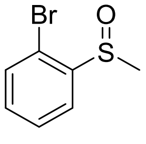


1

26.9 mg, 96% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.64 (dt, J = 6.2, 1.6 Hz, 2H), 7.55 – 7.45 (m, 3H), 2.71 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 145.67, 131.05, 129.36, 123.50, 43.93.

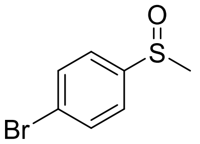


2

36.7 mg, 84% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.94 (dd, J = 7.8, 1.7 Hz, 1H), 7.66 – 7.51 (m, 2H), 7.37 (td, J = 7.6, 1.7 Hz, 1H), 2.81 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 145.35, 132.91, 132.26, 128.73, 125.67, 118.40, 41.89.

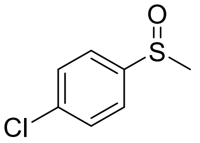


3

35.4 mg, 81% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.65 (d, J = 8.2 Hz, 2H), 7.51 (d, J = 8.2 Hz, 2H), 2.70 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 144.86, 132.58, 125.46, 125.15, 44.00.

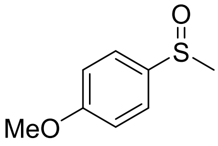


4

30.7 mg, 88% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.58 (d, J = 8.3 Hz, 2H), 7.50 (d, J = 8.4 Hz, 2H), 2.70 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 144.22, 137.24, 129.66, 124.97, 44.05.

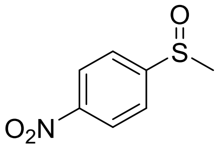


5

32.6 mg, 96% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.56 (dd, J = 8.8, 2.4 Hz, 2H), 7.02 – 6.97 (m, 2H), 3.82 (d, J = 2.3 Hz, 3H), 2.67 (d, J = 2.3 Hz, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 161.97, 136.60, 125.47, 114.85, 55.54, 44.03.

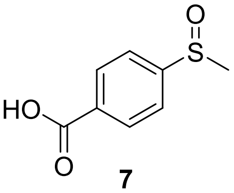


6

28.8 mg, 78% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.38 (d, J = 8.6 Hz, 2H), 7.84 (d, J = 8.8 Hz, 2H), 2.79 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 153.27, 149.51, 124.68, 124.48, 43.86.

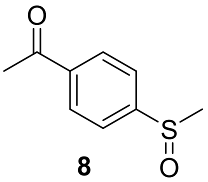


7

34.6 mg, 94% yield. The spectra matched with the previous report.[16]

^{1}H NMR (500 MHz, DMSO) δ 8.09 (d, J = 8.5 Hz, 2H), 7.79 (d, J = 8.3 Hz, 2H), 2.77 (s, 3H).

^{13}C NMR (125 MHz, DMSO) δ 171.81, 156.49, 137.98, 135.20, 129.06, 129.01, 48.23.

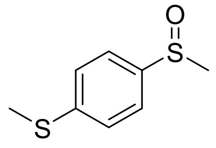


8

28.0 mg, 77% yield. The spectra matched with the previous report.[15]

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.09 (d, J = 8.2 Hz, 2H), 7.73 (d, J = 8.2 Hz, 2H), 2.75 (s, 3H), 2.64 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 197.03, 150.93, 139.08, 129.14, 123.75, 43.82, 26.79.

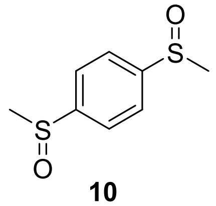


9

30.9 mg, 83% yield. The spectra matched with the previous report.[17]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.54 (d, J = 8.3 Hz, 2H), 7.34 (d, J = 8.3 Hz, 2H), 2.70 (s, 3H), 2.51 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 143.17, 141.65, 126.38, 124.01, 44.00, 15.21.



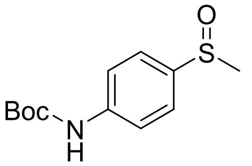
10

33.9 mg, 84% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.80 (s,4H), 2.75 (s, 6H).

^{13}C NMR (125 MHz, CDCl3) δ 149.27, 124.55, 44.02.

HRMS (ESI-TOF, [M + H$^+$]): calcd for $C_8H_{10}O_2S_2$, 203.0195, found 308.0719

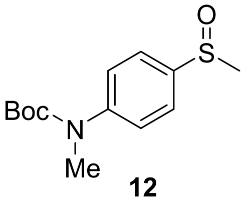


11

36.7 mg, 72% yield. The spectra matched with the previous report.[18]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.55 (d, J = 20.2 Hz, 4H), 2.68 (s, 3H), 1.49 (s, 9H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 152.51, 141.49, 138.67, 124.71, 118.88, 81.12, 43.97, 28.28.



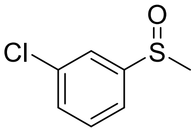
12

43.1 mg, 80% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.58 (d, J = 8.3 Hz, 2H), 7.41 (d, J = 8.2 Hz, 2H), 3.27 (s, 3H), 2.69 (s, 3H), 1.45 (s, 9H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 154.27, 146.38, 141.55, 125.77, 123.94, 81.08, 43.94, 37.04, 28.27.

HRMS (ESI-TOF, [M + Na^+]): calcd for $C_{13}H_{19}NO_3S$, 292.0983, found 292.0987

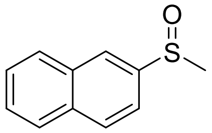


13

28.2 mg, 81% yield. The spectra matched with the previous report.[19]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.65 (s, 1H), 7.53 – 7.42 (m, 3H), 2.73 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 147.80, 135.71, 131.21, 130.61, 123.64, 121.61, 44.02.

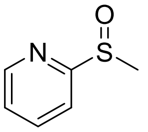


14

32.7 mg, 86% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.15 (d, J = 1.8 Hz, 1H), 7.92 (d, J = 8.5 Hz, 1H), 7.87 (dt, J = 8.5, 2.8 Hz, 1H), 7.86 – 7.81 (m, 1H), 7.53 (dt, J = 9.5, 3.2 Hz, 3H), 2.72 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 142.77, 134.44, 132.93, 129.61, 128.52, 128.07, 127.79, 127.36, 124.05, 119.45, 43.80.

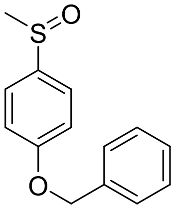


15

23.7 mg, 84% yield. The spectra matched with the previous report.[15]

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.54 (d, J = 4.3 Hz, 1H), 7.94 (d, J = 7.8 Hz, 1H), 7.87 (td, J = 7.6, 1.7 Hz, 1H), 7.30 (ddd, J = 7.7, 4.7, 1.2 Hz, 1H), 2.77 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 166.00, 149.55, 138.11, 124.58, 119.25, 41.29.

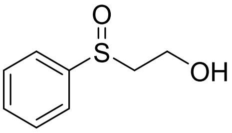


16

33.0 mg, 67% yield. The spectra matched with the previous report.[18]

^{1}H NMR (500 MHz, CDCl$_3$) δ 7.59 (d, J = 8.5 Hz, 2H), 7.46 – 7.31 (m, 5H), 7.10 (d, J = 8.6 Hz, 2H), 5.11 (s, 2H), 2.70 (s, 3H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 161.12, 136.97, 136.20, 128.71, 128.26, 127.47, 125.49, 115.76, 70.28, 44.01.

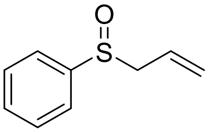


17

20.0 mg, 60% yield. The spectra matched with the previous report.[20]

^{1}H NMR (500 MHz, CDCl$_3$) δ 7.67 – 7.62 (m, 2H), 7.57 – 7.47 (m, 3H), 4.17 (ddd, J = 12.2, 8.9, 3.3 Hz, 1H), 3.99 (dt, J = 12.2, 4.7 Hz, 1H), 3.78 (s, 1H), 3.15 (ddd, J = 13.2, 8.9, 4.2 Hz, 1H), 2.90 (ddd, J = 13.5, 5.3, 3.2 Hz, 1H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 143.07, 131.22, 129.43, 123.97, 58.67, 56.84.

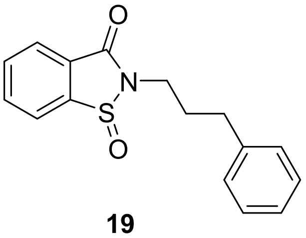


18

27.6 mg, 83% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, CDCl$_3$)) δ 7.62 – 7.55 (m, 2H), 7.54 – 7.45 (m, 3H), 5.63 (ddt, J = 17.5, 10.3, 7.5 Hz, 1H), 5.32 (d, J = 10.1 Hz, 1H), 5.18 (dd, J = 16.9, 1.4 Hz, 1H), 3.59 – 3.46 (m, 2H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 142.91, 131.11, 129.04, 125.24, 124.34, 123.86, 60.85.



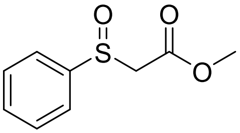
19

50.2 mg, 88% yield.

^{1}H NMR (500 MHz, CDCl$_3$) δ 7.95 (d, J = 7.3 Hz, 1H), 7.77 – 7.71 (m, 1H), 7.72 – 7.61 (m, 2H), 7.30 (t, J = 7.5 Hz, 2H), 7.24 – 7.17 (m, 3H), 4.70 – 4.56 (m, 2H), 2.82 (t, J = 7.6 Hz, 2H), 2.29 – 2.17 (m, 2H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 170.89, 154.72, 140.73, 132.41, 132.15, 129.90, 128.57, 128.42, 126.20, 124.88, 124.04, 70.14, 32.10, 30.01.

HRMS (ESI-TOF, [M + Na$^+$]): calcd for $C_{16}H_{15}NO_2S$, 308.0721, found 308.0719

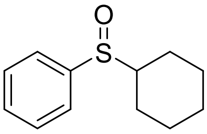


20

23.8 mg, 60% yield. The spectra matched with the previous report.[20]

^{1}H NMR (500 MHz, CDCl$_3$) δ 7.68 (dd, J = 6.5, 2.8 Hz, 2H), 7.57 – 7.51 (m, 3H), 3.84 (d, J = 13.7 Hz, 1H), 3.70 (s, 3H), 3.67 (d, J = 13.7 Hz, 1H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 165.20, 143.03, 131.84, 129.45, 124.10, 61.57, 52.78.

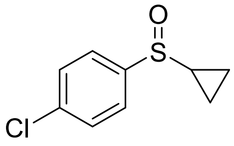


21

38.7 mg, 93% yield. The spectra matched with the previous report.[21]

^{1}H NMR (500 MHz, CDCl$_3$) δ 7.57 (dd, J = 7.6, 2.0 Hz, 2H), 7.54 – 7.40 (m, 3H), 2.54 (tt, J = 11.7, 3.4 Hz, 1H), 1.82 (tt, J = 12.8, 3.3 Hz, 4H), 1.63 (dd, J = 11.4, 4.0 Hz, 1H), 1.40 (dtd, J = 27.8, 12.1, 8.6 Hz, 2H), 1.30 – 1.09 (m, 3H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 141.92, 130.90, 128.88, 125.00, 63.16, 26.28, 25.60, 25.45, 25.31, 24.00.

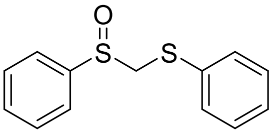


22

21.6 mg, 54% yield. The spectra matched with the previous report.[22]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.60 (d, J = 8.4 Hz, 2H), 7.49 (d, J = 8.4 Hz, 2H), 2.23 (tt, J = 8.0, 4.8 Hz, 1H), 1.27 – 1.18 (m, 1H), 1.07 – 0.89 (m, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 143.48, 137.13, 129.46, 125.43, 33.87, 3.48, 2.75.

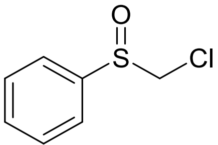


23

35.7 mg, 72% yield. The spectra matched with the previous report.[23]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.70 (dd, J = 6.8, 3.0 Hz, 2H), 7.49 (dd, J = 5.0, 1.9 Hz, 3H), 7.47 – 7.41 (m, 2H), 7.33 – 7.24 (m, 3H), 4.20 (d, J = 13.5 Hz, 1H), 4.08 (d, J = 13.5 Hz, 1H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 133.59, 131.68, 131.01, 129.31, 129.15, 127.78, 124.91, 60.97.

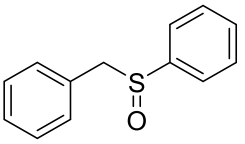


24

29.6 mg, 85% yield. The spectra matched with the previous report.[15]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.73 – 7.67 (m, 2H), 7.59 – 7.53 (m, 3H), 4.38 (dd, J = 5.1, 1.2 Hz, 2H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 140.97, 132.18, 129.36, 124.83, 61.29.



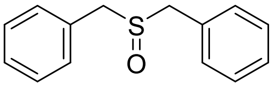
25

34.6 mg, 80% yield. The spectra matched with the previous report.[14]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.52 – 7.34 (m, 5H), 7.32 – 7.21 (m, 3H), 7.01 – 6.95

(m, 2H), 4.09 (d, J = 12.6 Hz, 1H), 4.00 (d, J = 12.6 Hz, 1H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 142.79, 131.16, 130.36, 129.15, 128.85, 128.45, 128.25, 124.44, 63.59.

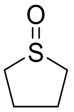


26

36.8 mg, 80% yield. The spectra matched with the previous report.[20]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.42 – 7.33 (m, 6H), 7.32 – 7.26 (m, 4H), 3.90 (q, J = 13.0 Hz, 4H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 130.16, 130.13, 128.96, 128.36, 57.32.

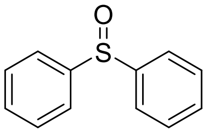


27

16.0 mg, 77% yield. The spectra matched with the previous report.[24]

^{1}H NMR (500 MHz, $CDCl_3$) δ 3.05 – 2.73 (m, 4H), 2.46 (tt, J = 9.3, 5.8 Hz, 2H), 2.04 (q, J = 8.0 Hz, 2H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 54.53, 25.53.

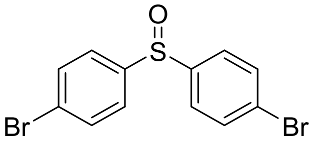


28

39.6 mg, 98% yield. The spectra matched with the previous report.[19]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.67 – 7.62 (m, 4H), 7.47 – 7.40 (m, 6H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 145.60, 131.07, 129.34, 124.78.

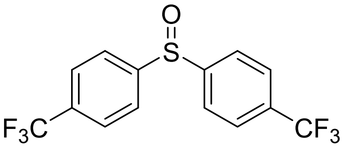


29

54.7 mg, 76% yield. The spectra matched with the previous report.[25]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.59 (dd, J = 8.5, 1.8 Hz, 4H), 7.51 – 7.46 (m, 4H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 144.36, 132.71, 126.17, 125.94.

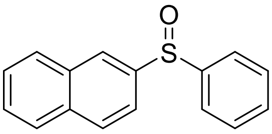


30

52.8 mg, 78% yield. The spectra matched with the previous report.[26]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.80 (d, J = 8.2 Hz, 4H), 7.74 (d, J = 8.2 Hz, 4H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 149.18, 133.48 (d, J_{C-F} = 33.0 Hz), 126.64 (d, J_{C-F} = 3.7 Hz), 124.90, 123.31 (q, J_{C-F} = 272.7 Hz).

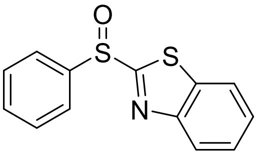


31

39.3 mg, 78% yield. The spectra matched with the previous report.[27]

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.31 (s, 1H), 7.97 – 7.92 (m, 1H), 7.89 – 7.81 (m, 2H), 7.72 – 7.66 (m, 2H), 7.60 – 7.53 (m, 2H), 7.50 (dd, J = 8.6, 1.8 Hz, 1H), 7.48 – 7.39 (m, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 145.42, 142.55, 134.39, 132.81, 131.12, 129.71, 129.36, 128.65, 128.03, 127.91, 127.29, 125.34, 125.01, 120.69.



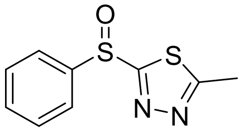
32

46.1 mg, 89% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.03 (dd, J = 8.3, 2.9 Hz, 1H), 7.90 (dd, J = 10.1, 7.1 Hz, 3H), 7.51 (tq, J = 8.6, 4.6, 3.4 Hz, 4H), 7.43 (td, J = 7.6, 2.9 Hz, 1H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 178.26, 153.72, 143.04, 135.85, 132.01, 129.60, 126.83, 126.36, 124.64, 124.19, 122.26.

HRMS (ESI-TOF, [M + Na^+]): calcd for $C_{13}H_9NOS_2$, 282.0023, found 282.0021



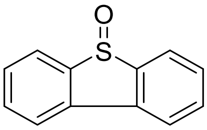
33

40.8 mg, 91% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.79 (td, J = 5.9, 5.1, 3.3 Hz, 2H), 7.56 – 7.49 (m, 3H), 2.76 (s, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 179.32, 169.13, 142.85, 132.17, 129.75, 124.17, 16.11.

HRMS (ESI-TOF, [M + H^+]): calcd for $C_9H_8N_2OS_2$, 225.0156, found 225.0157

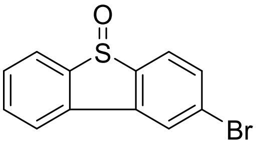


34

34.0 mg, 85% yield. The spectra matched with the previous report.[28]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.98 (d, J = 7.6 Hz, 2H), 7.80 (d, J = 7.7 Hz, 2H), 7.59 (t, J = 7.5 Hz, 2H), 7.49 (t, J = 7.5 Hz, 2H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 145.13, 137.08, 132.56, 129.54, 127.51, 121.93.

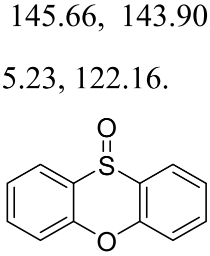


35

50.8 mg, 91% yield. The spectra matched with the previous report.[29]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.98 (d, J = 7.6 Hz, 1H), 7.92 (d, J = 1.8 Hz, 1H), 7.82 (d, J = 8.2 Hz, 1H), 7.75 (d, J = 7.6 Hz, 1H), 7.60 (td, J = 7.3, 6.7, 1.4 Hz, 3H), 7.56 – 7.49 (m, 1H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 145.66, 143.90, 139.00, 135.83, 132.71, 132.38, 130.24, 128.79, 127.65, 127.41, 125.23, 122.16.



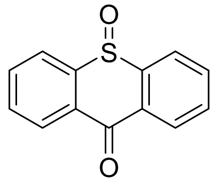
36

37.6 mg, 87% yield. The spectra matched with the previous report.[30]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.93 (dd, J = 7.8, 1.7 Hz, 2H), 7.62 (td, J = 7.9, 7.2, 1.7

Hz, 2H), 7.46 – 7.33 (m, 4H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 149.52, 133.77, 131.06, 124.86, 123.77, 118.82.

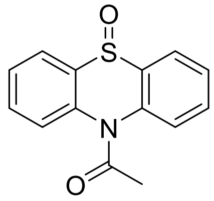


37

24.6 mg, 54% yield. The spectra matched with the previous report.[31]

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.37 (d, J = 7.7 Hz, 2H), 8.17 (d, J = 7.9 Hz, 2H), 7.86 (t, J = 7.7 Hz, 2H), 7.73 (t, J = 7.6 Hz, 2H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 179.83, 144.93, 133.77, 131.42, 129.40, 128.61, 127.04.

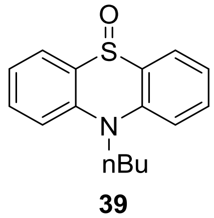


38

40.1 mg, 78% yield. The spectra matched with the previous report.[32]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.87 (dd, J = 7.6, 1.6 Hz, 1H), 7.66 (dd, J = 7.7, 1.4 Hz, 1H), 7.50 (dtd, J = 21.5, 7.5, 1.5 Hz, 1H), 2.33 (s, 1H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 168.25, 140.19, 133.71, 130.48, 127.57, 126.51, 124.49, 23.39.

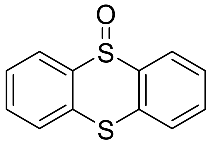


39

45.6 mg, 84% yield. The spectra matched with the previous report.[33]

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.94 (dt, J = 7.6, 1.5 Hz, 2H), 7.62 (td, J = 7.9, 7.2, 1.6 Hz, 2H), 7.42 (d, J = 8.5 Hz, 2H), 7.24 (t, J = 7.4 Hz, 2H), 4.22 (t, 1H), 1.95 (h, J = 6.9, 6.1 Hz, 2H), 1.57 (h, J = 7.4 Hz, 2H), 1.07 (t, J = 7.4 Hz, 3H).

^{13}C NMR (125 MHz, $CDCl_3$) δ 138.36, 132.86, 131.73, 124.08, 121.68, 115.71, 47.90, 28.28, 20.09, 13.82.



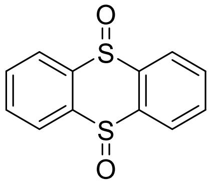
40

38.5 mg, 83% yield.

^{1}H NMR (500 MHz, CDCl$_3$) δ 7.92 (dd, *J* = 7.8, 1.5 Hz, 2H), 7.62 (dd, *J* = 7.7, 1.3 Hz, 2H), 7.54 (ddd, *J* = 9.1, 6.9, 1.3 Hz, 2H), 7.46 – 7.36 (m, 2H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 141.40, 129.84, 129.01, 128.42, 124.47.

HRMS (ESI-TOF, [M + H$^+$]): calcd for $C_{12}H_8OS_2$, 233.0089, found 233.0096



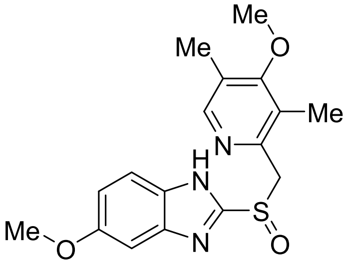
41

42.1 mg, 85% yield.

^{1}H NMR (500 MHz, CDCl$_3$) δ 8.07 – 8.02 (m, 4H), 7.70 (t, J = 4.5 Hz, 4H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 138.35, 130.79, 123.70.

HRMS (ESI-TOF, [M + H$^+$]): calcd for $C_{12}H_8O_2S_2$ 249.0038, found 249.0048

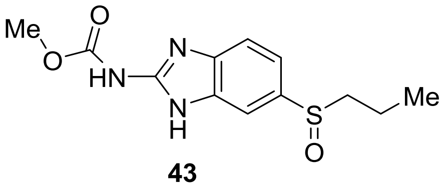


42

40.1 mg, 58% yield. The spectra matched with the previous report.[16]

^{1}H NMR (500 MHz, CDCl$_3$) δ 8.25 (s, 1H), 7.40 (d, J = 8.6 Hz, 1H), 7.03 (d, J = 2.6 Hz, 1H), 6.81 (dt, J = 8.8, 2.5 Hz, 1H), 4.36 (d, J = 2.4 Hz, 2H), 3.83 (d, J = 2.3 Hz, 3H), 3.77 (d, J = 2.4 Hz, 3H), 2.30 (d, J = 2.4 Hz, 3H), 2.26 (d, J = 2.3 Hz, 3H).

^{13}C NMR (125 MHz, CDCl$_3$) δ 165.08, 155.94, 155.89, 150.62, 148.44, 126.38, 125.49, 111.02, 60.09, 55.84, 35.10, 29.28, 13.41, 11.29.



43

34.8 mg, 62% yield. The spectra matched with the previous report.[16]

^{1}H NMR (400 MHz, DMSO) δ 11.92 (s, 2H), 7.73 (d, J = 1.6 Hz, 1H), 7.58 (d, J = 8.3 Hz, 1H), 7.34 (dd, J = 8.3, 1.7 Hz, 1H), 3.80 (s, 3H), 2.94 – 2.68 (m, 2H), 1.68 – 1.37 (m, 2H), 0.96 (t, J = 7.4 Hz, 3H).

^{13}C NMR (100MHz, DMSO) δ 154.87, 149.09, 136.61, 117.25, 114.87, 110.23, 58.67, 53.09, 15.89, 13.42.

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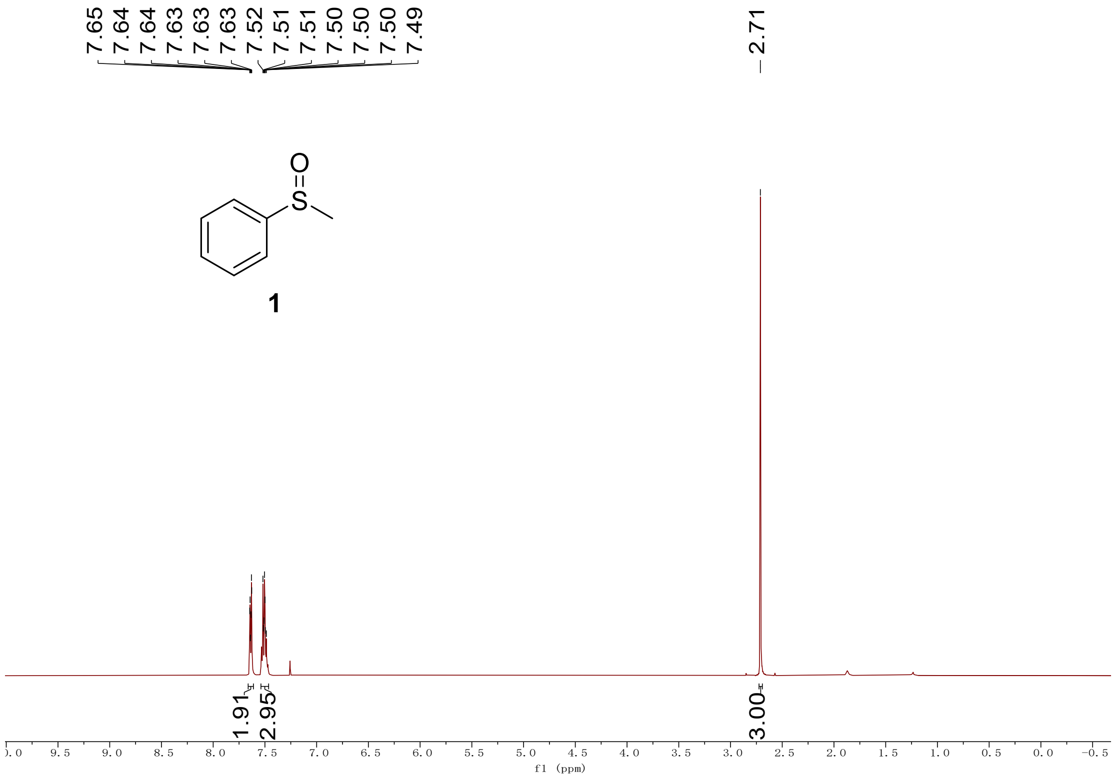
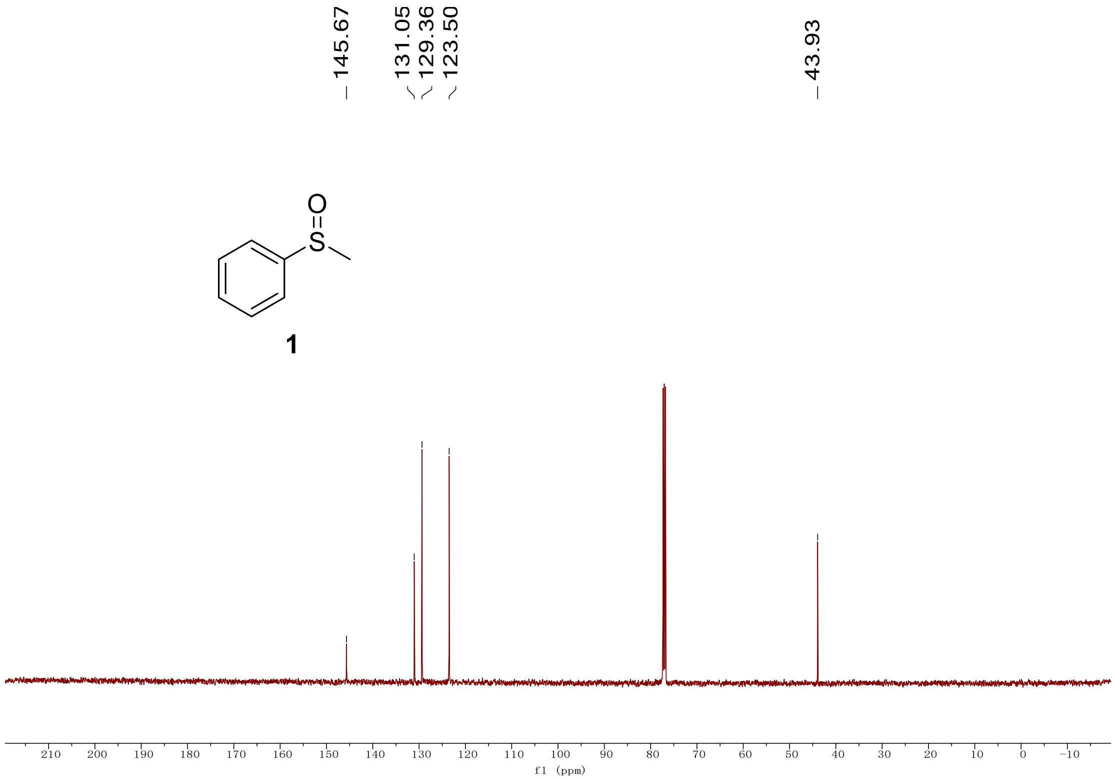
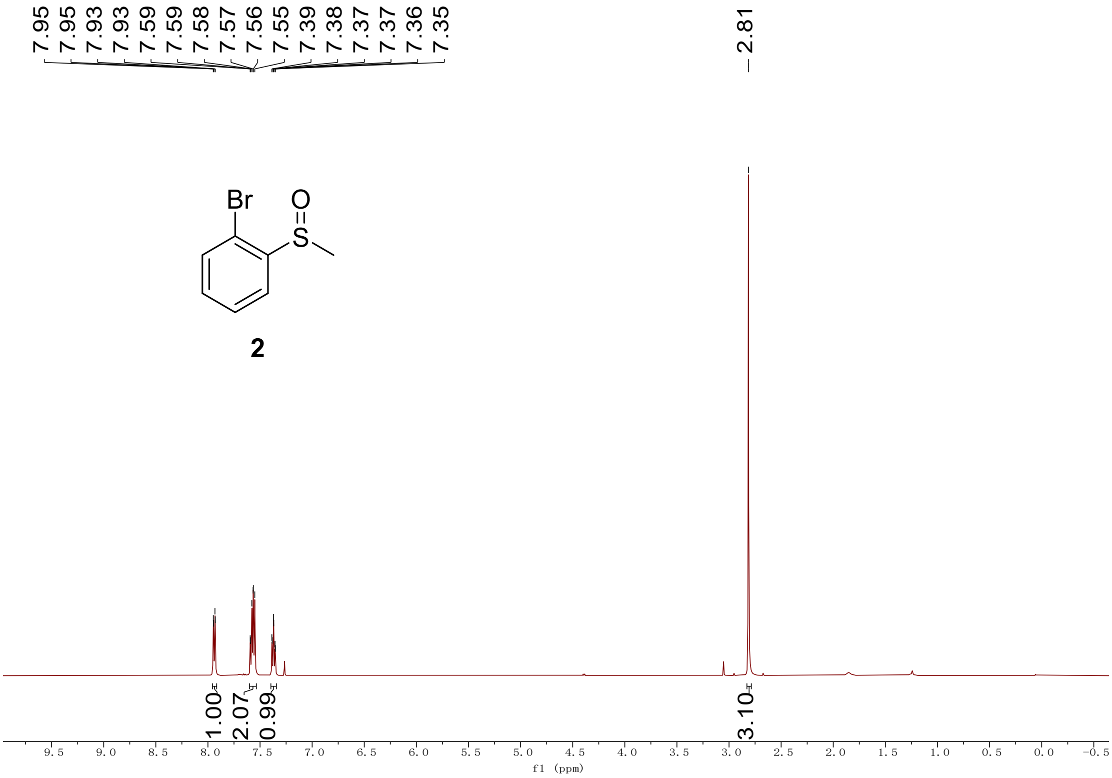
15. NMR Spectra



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7.58
7.57
7.56
7.55
7.39
7.38
7.37
7.37
7.36
7.35
2.81
Br
O
S
2
1.00
2.07
0.99
3.10
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
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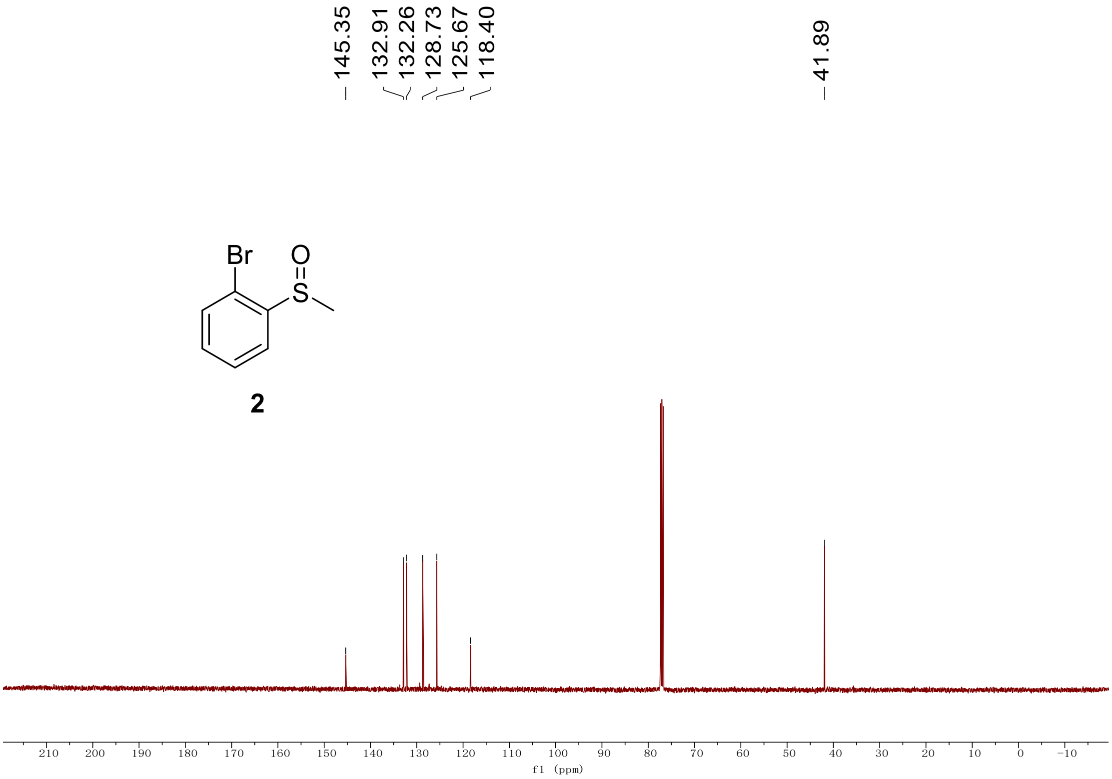
f1 (ppm)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200
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170
160
150
140
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120
110
100
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80
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60
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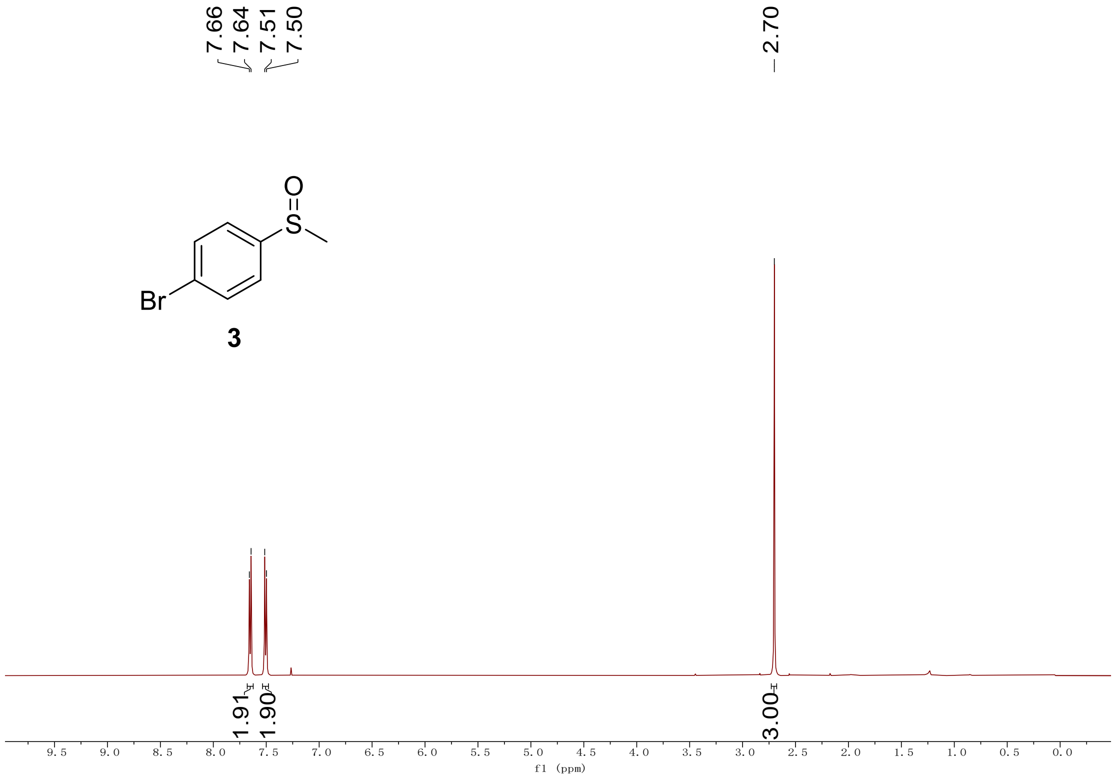
40
30
20
10
0
-10
f1 (ppm)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O
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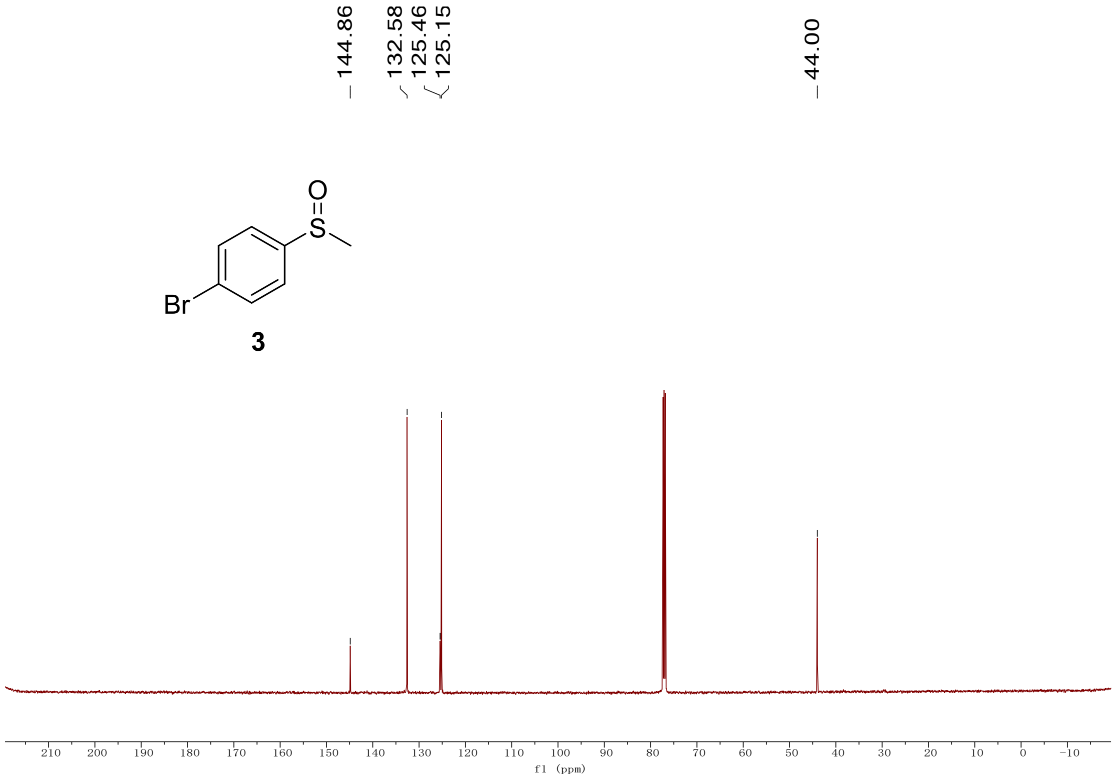
1.90
3.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)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O
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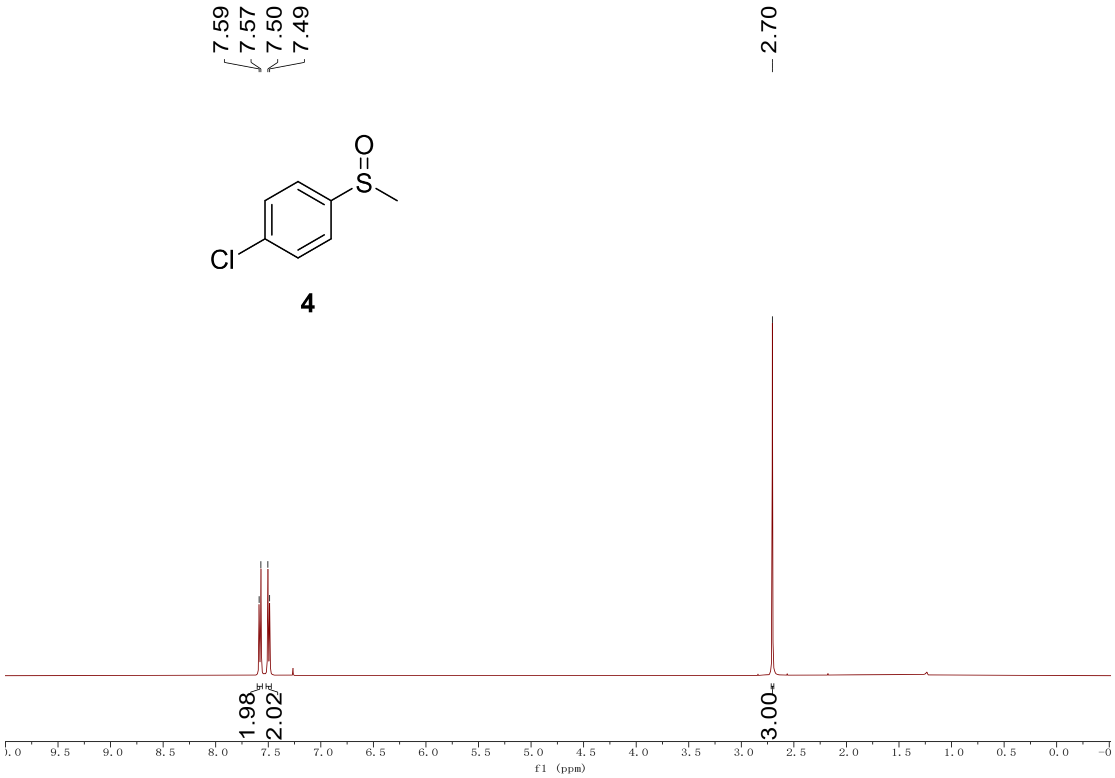
f1 (ppm)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8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
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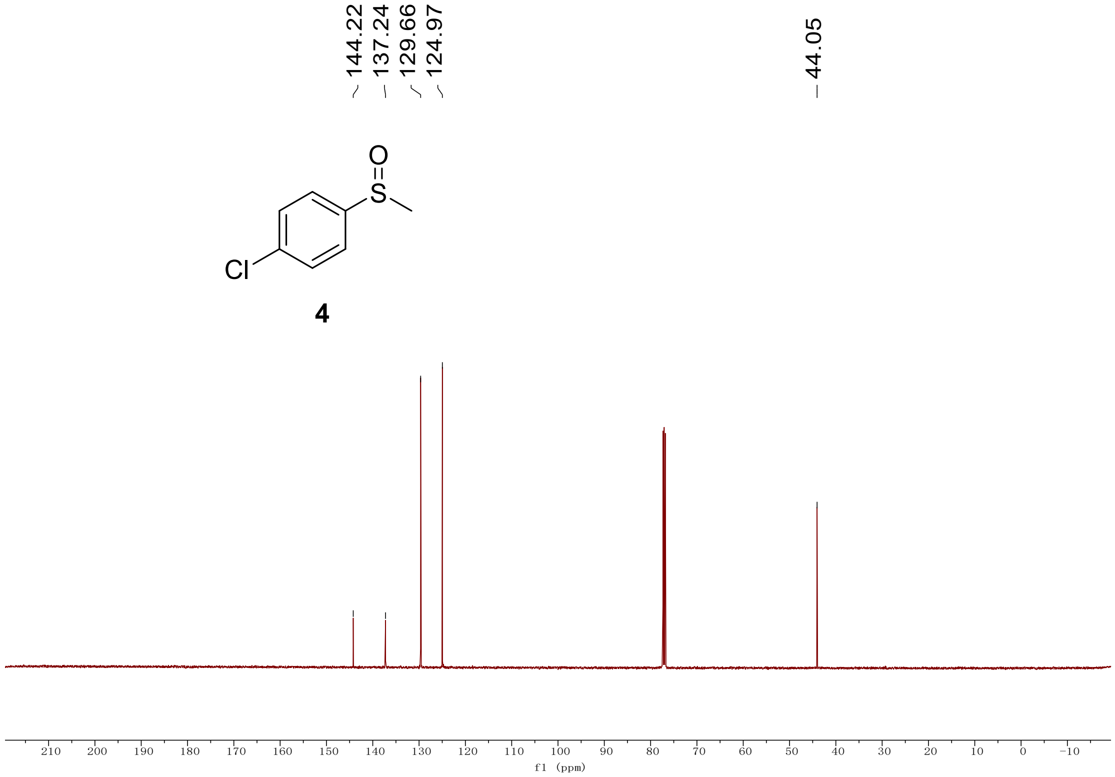
f1 (ppm)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120
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100
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40
30
20
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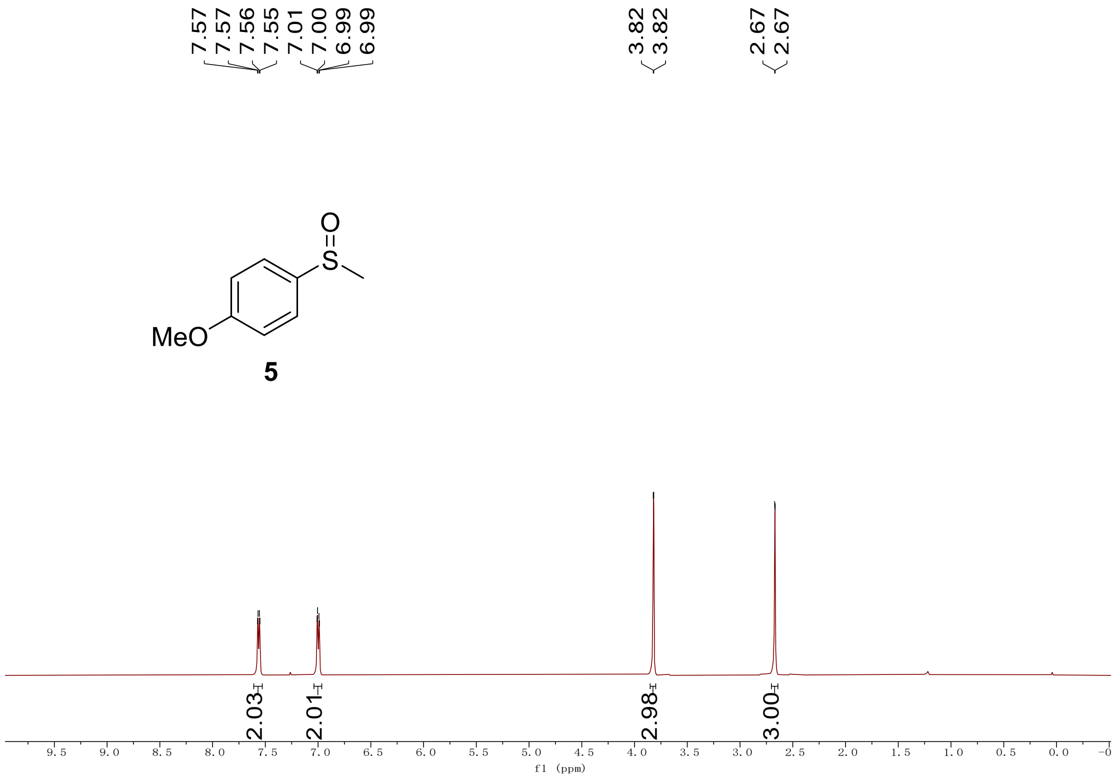
0
−10
f1 (ppm)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O
S
5
2.03
2.01
2.98
3.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0
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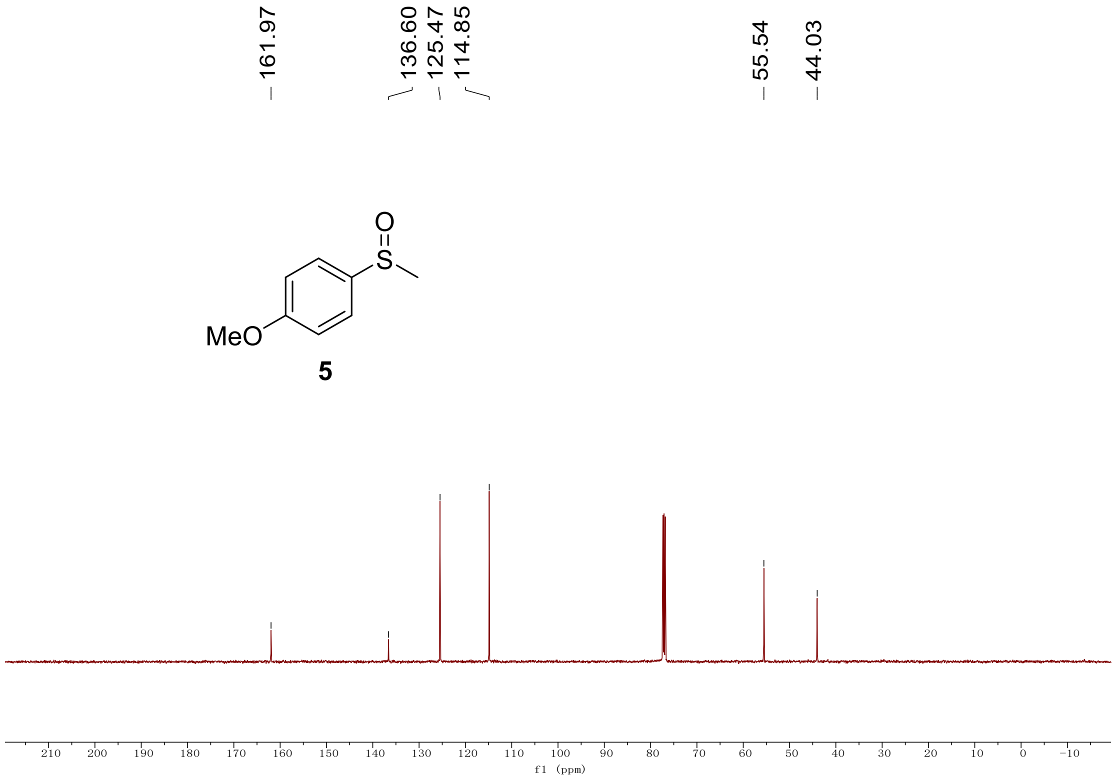
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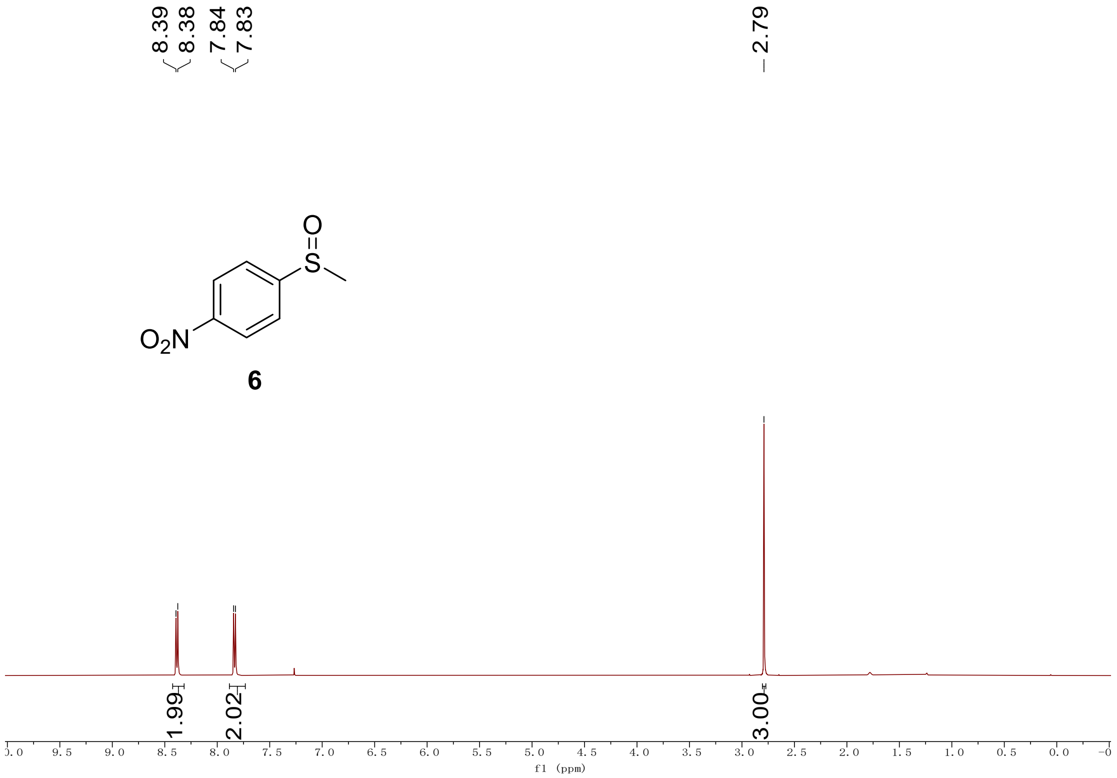
f1 (ppm)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3.00
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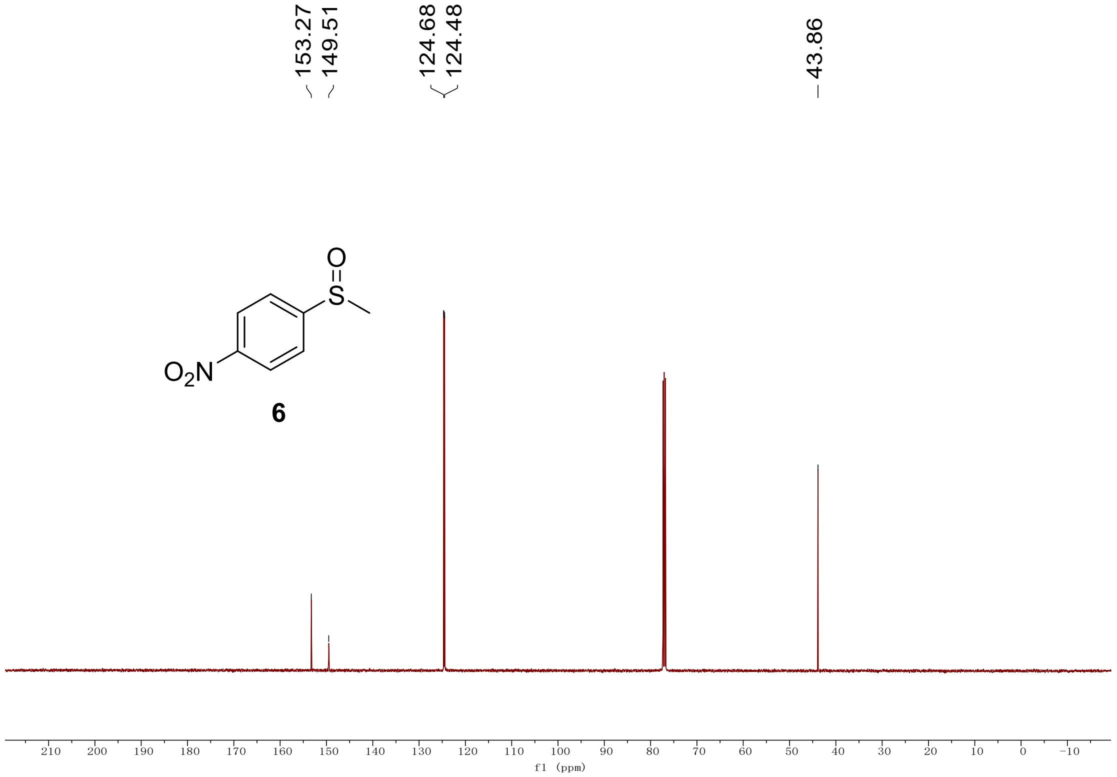
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0
f1 (ppm)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S
O2N
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80
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40
30
20
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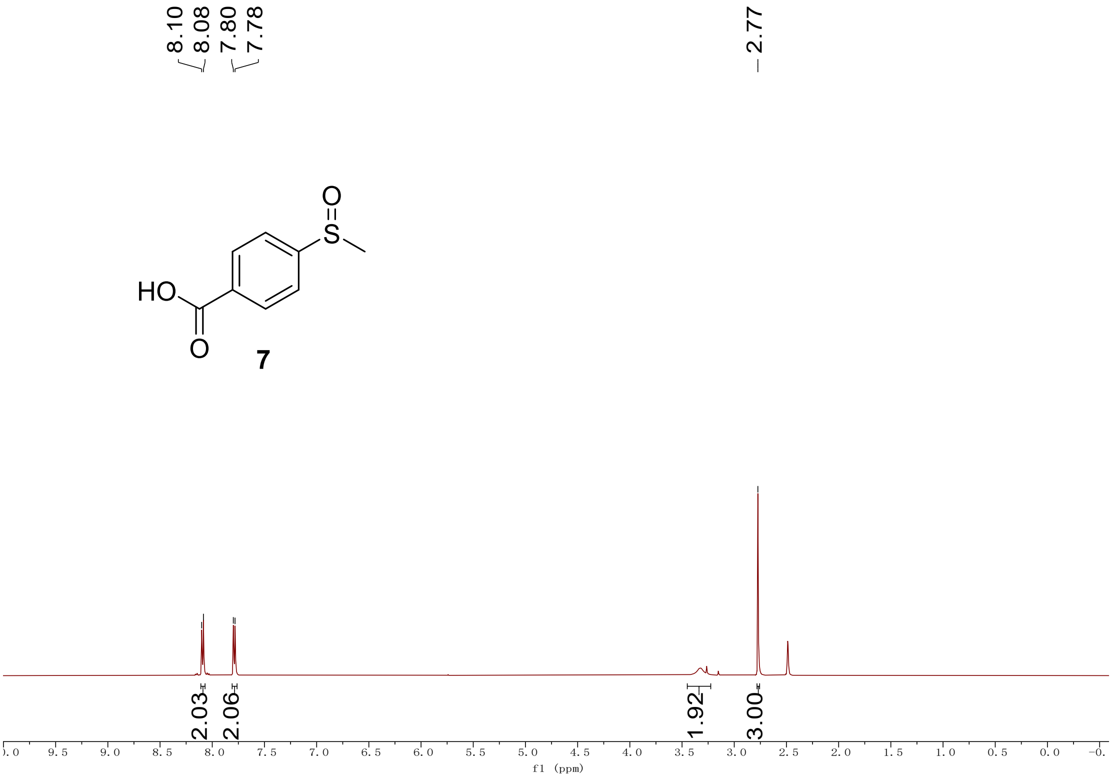
0
-10
f1 (ppm)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O
S
O
7
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2.06
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10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
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4.0
3.5
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2.0
1.5
1.0
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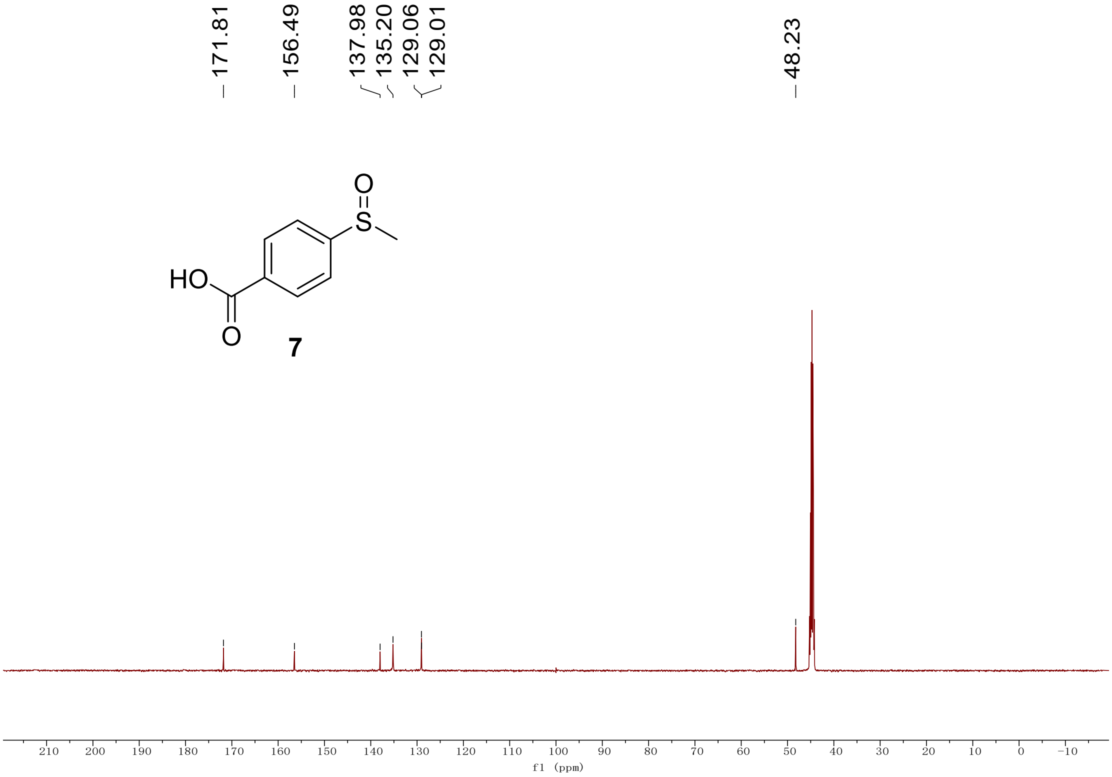
f1 (ppm)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S
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180
170
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140
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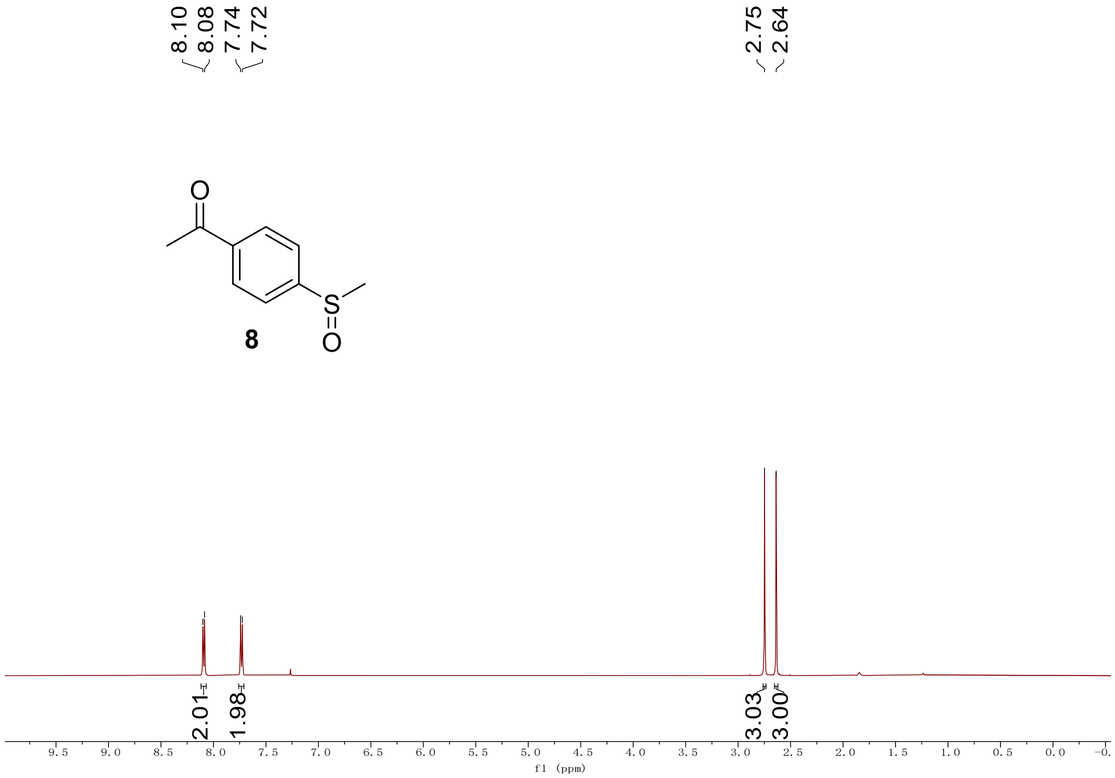
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)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9.0
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7.0
6.5
6.0
5.5
5.0
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1.5
1.0
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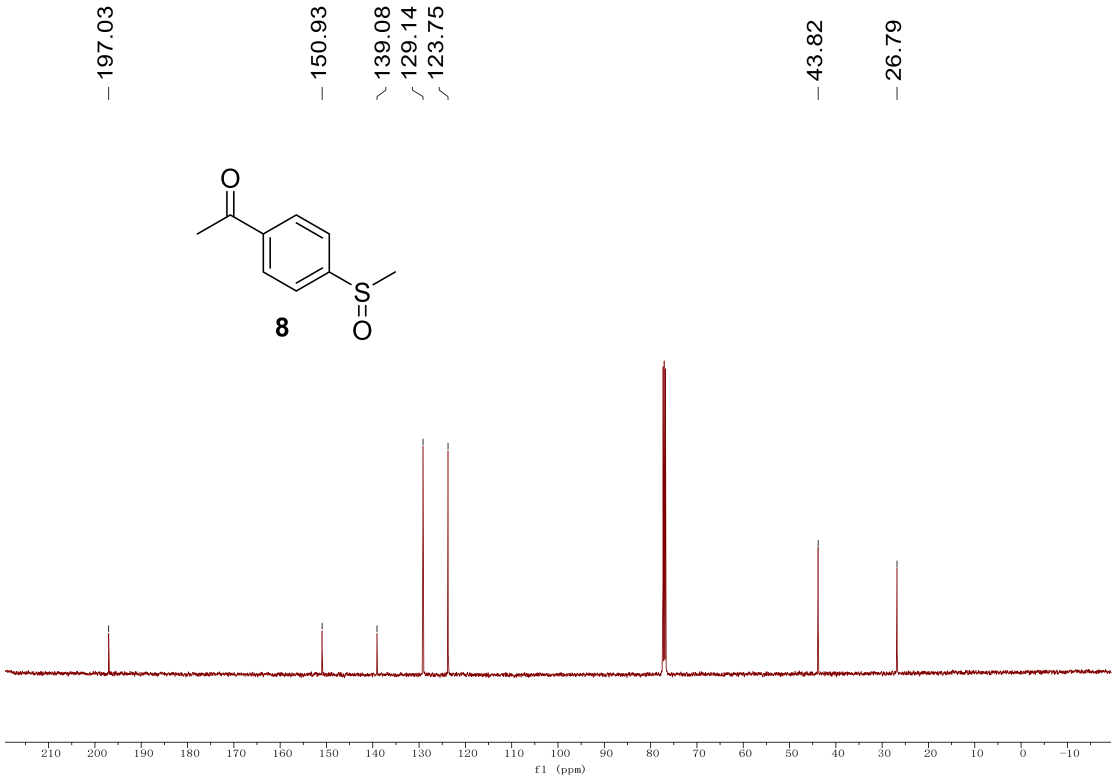
-0.
f1 (ppm)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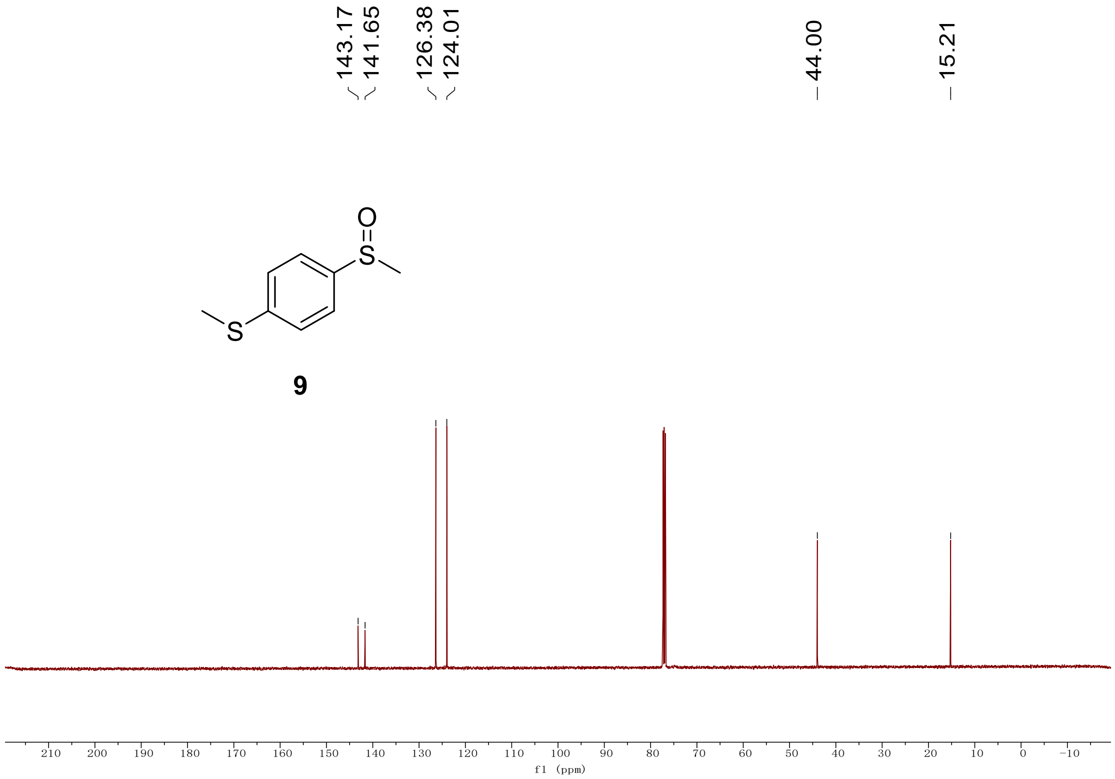
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)


7.55
7.53
7.35
7.33
2.70
2.51
O
S
S
9
1.96
1.96
3.05
3.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)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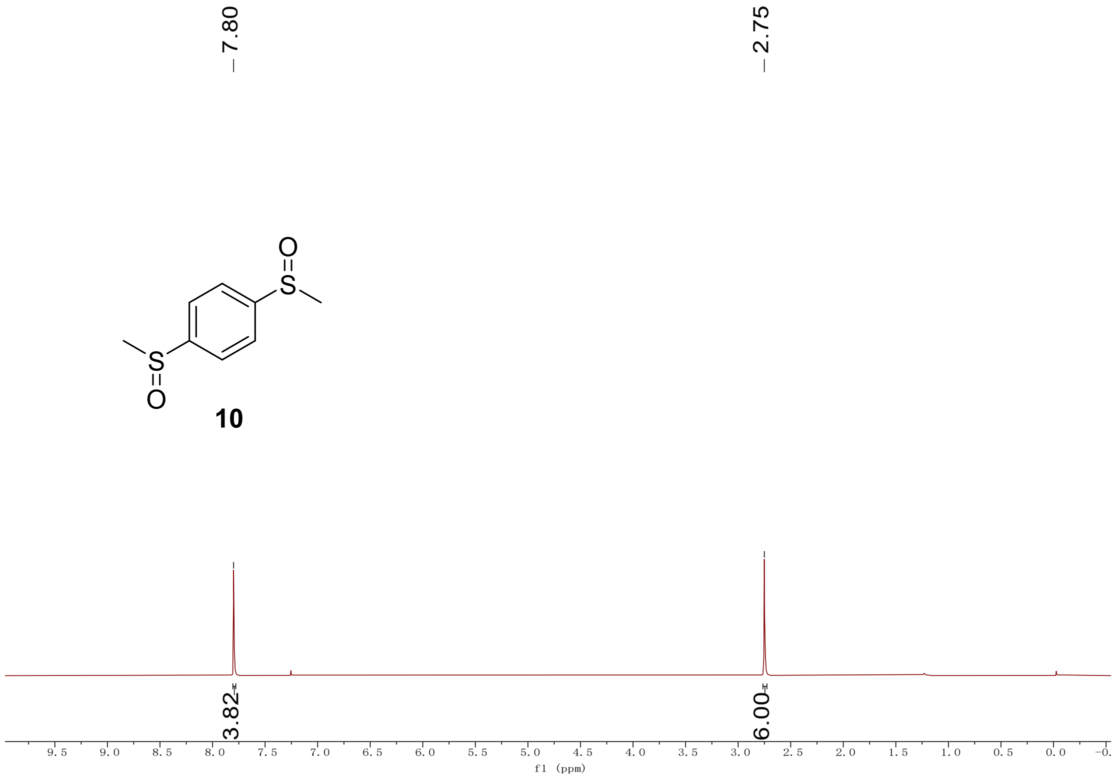
f1 (ppm)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5.0
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2.0
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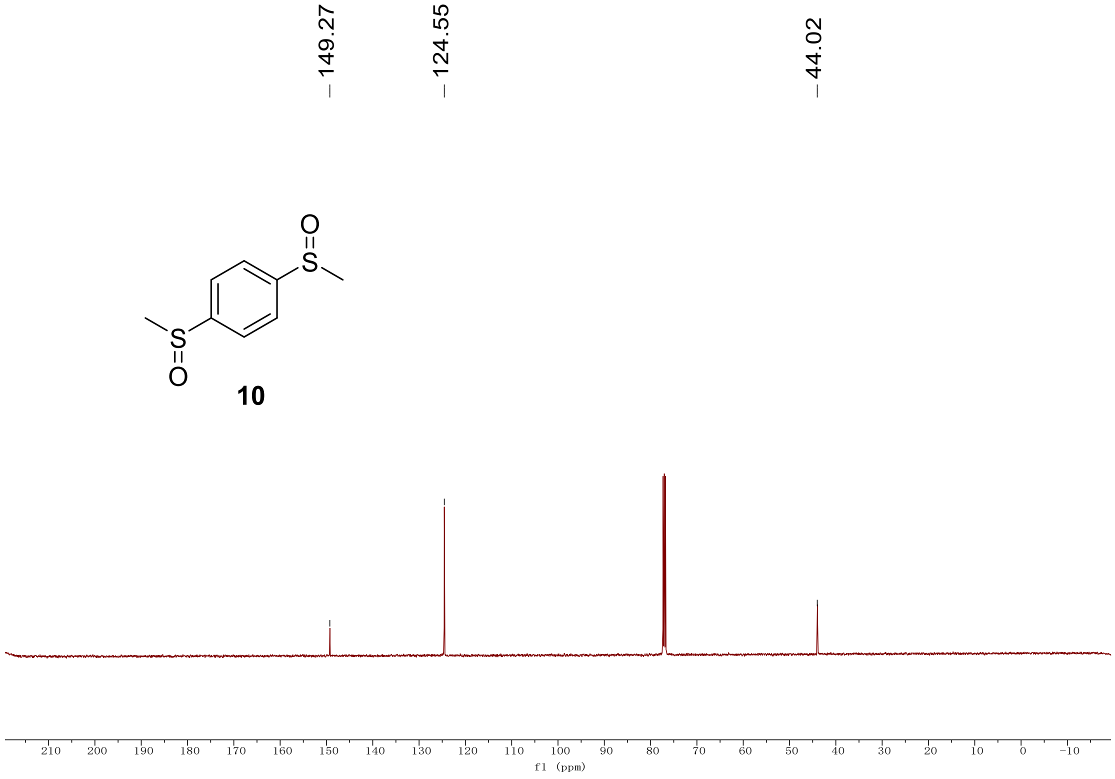
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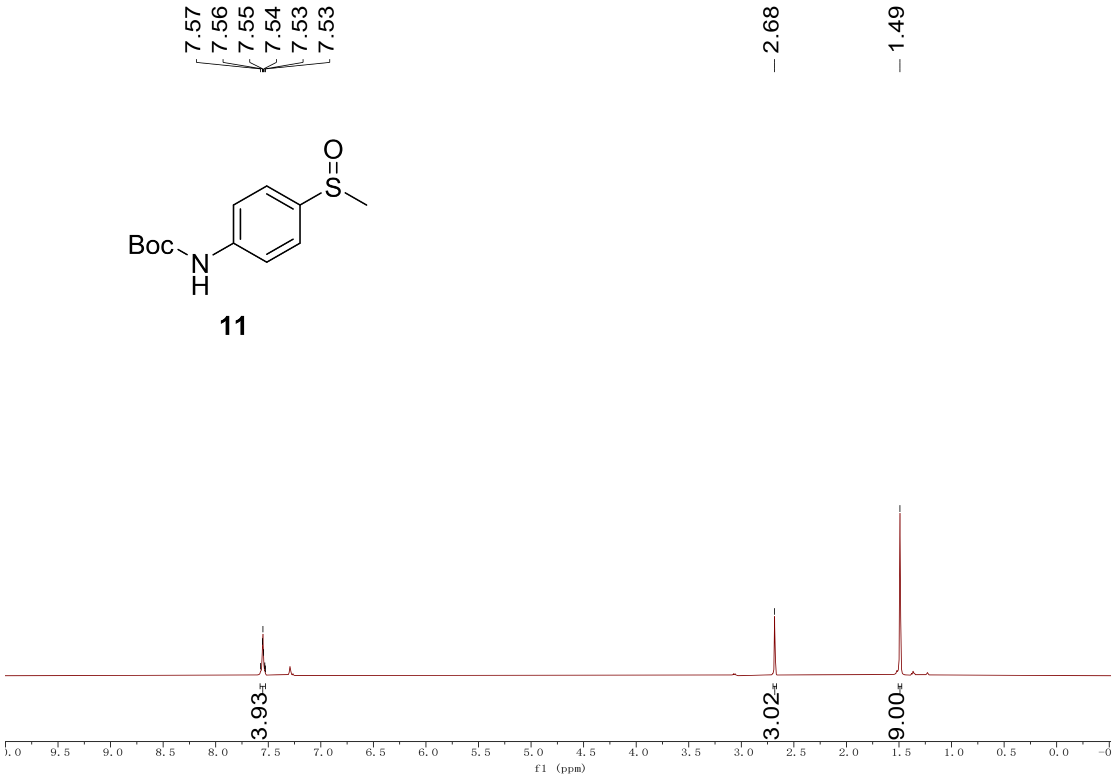
f1 (ppm)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Boc
N
H
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9.00
10.0
9.5
9.0
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8.0
7.5
7.0
6.5
6.0
5.5
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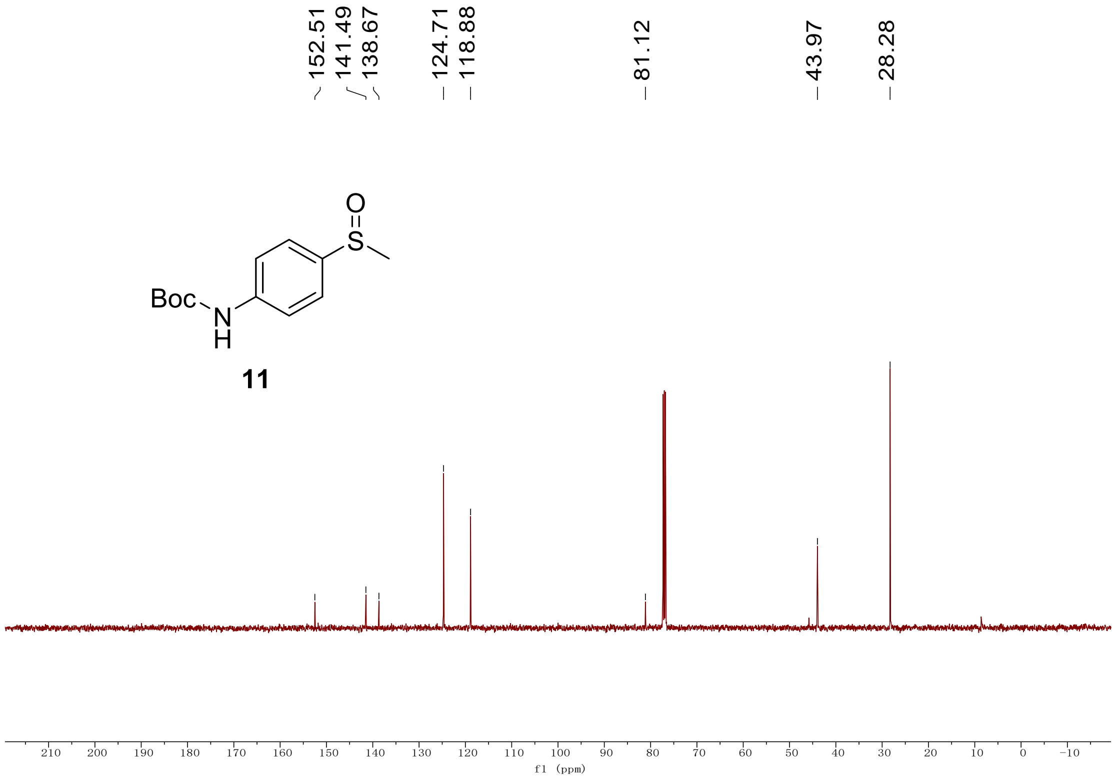
f1 (ppm)

11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180
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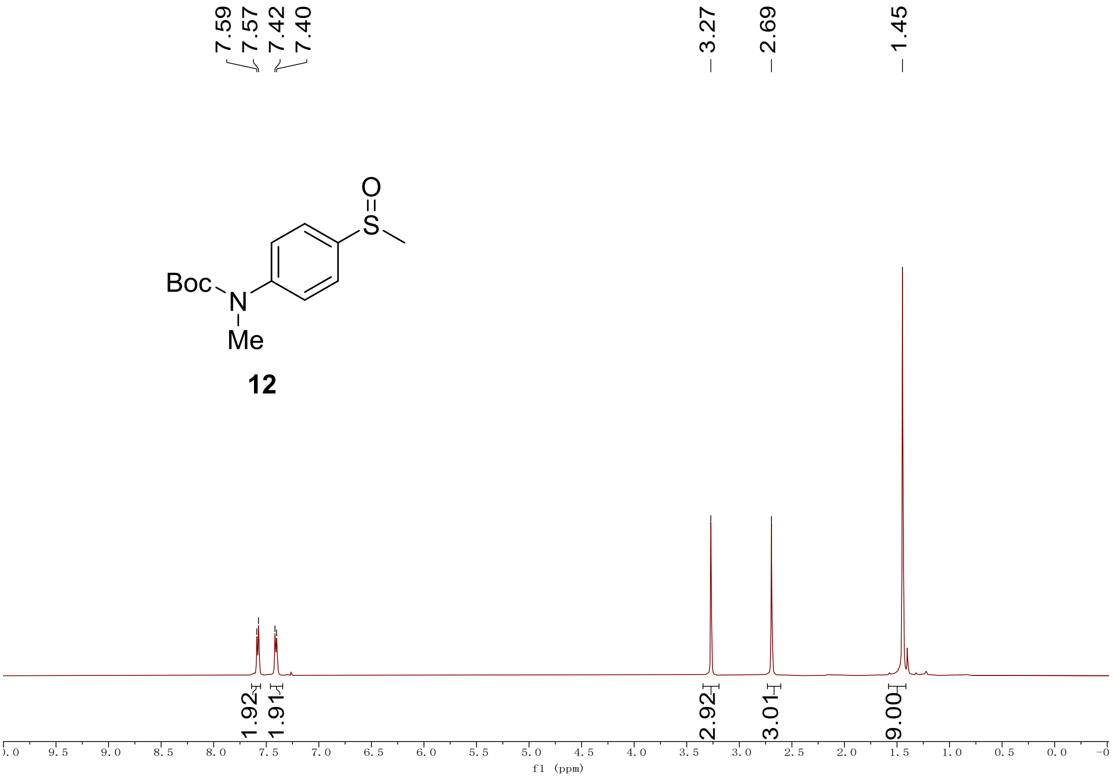
f1 (ppm)

11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2.92
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7.0
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6.0
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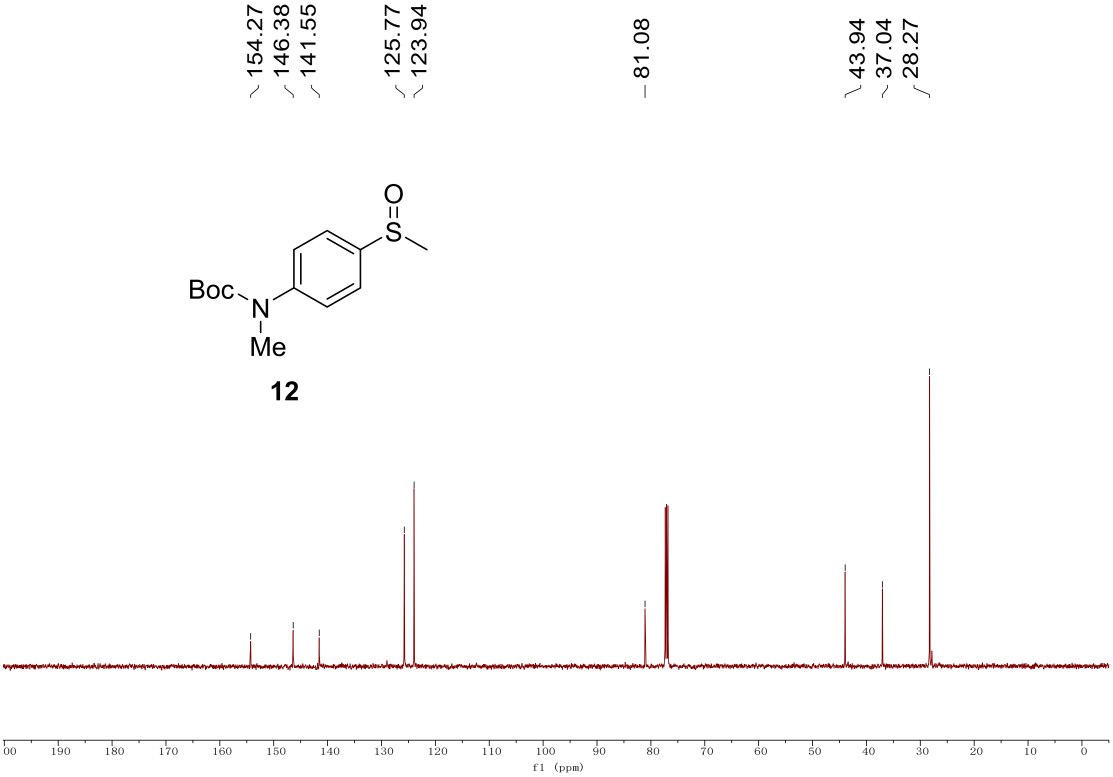
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12
190
180
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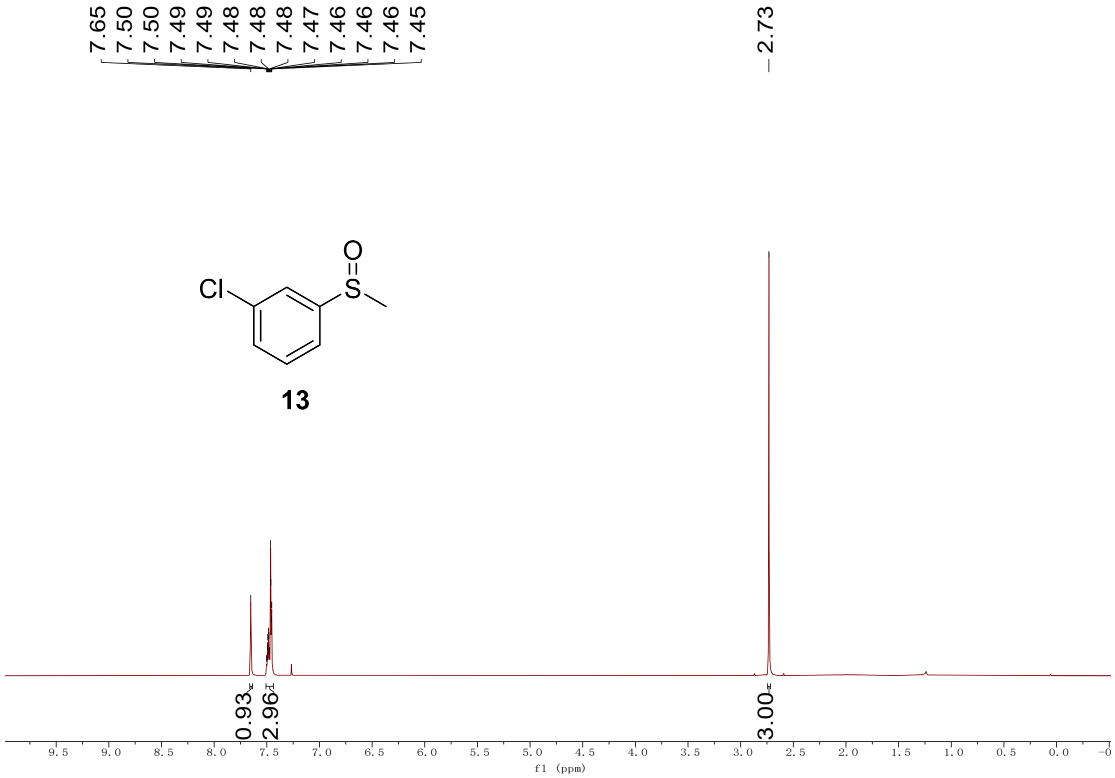
f1 (ppm)



13

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7.50
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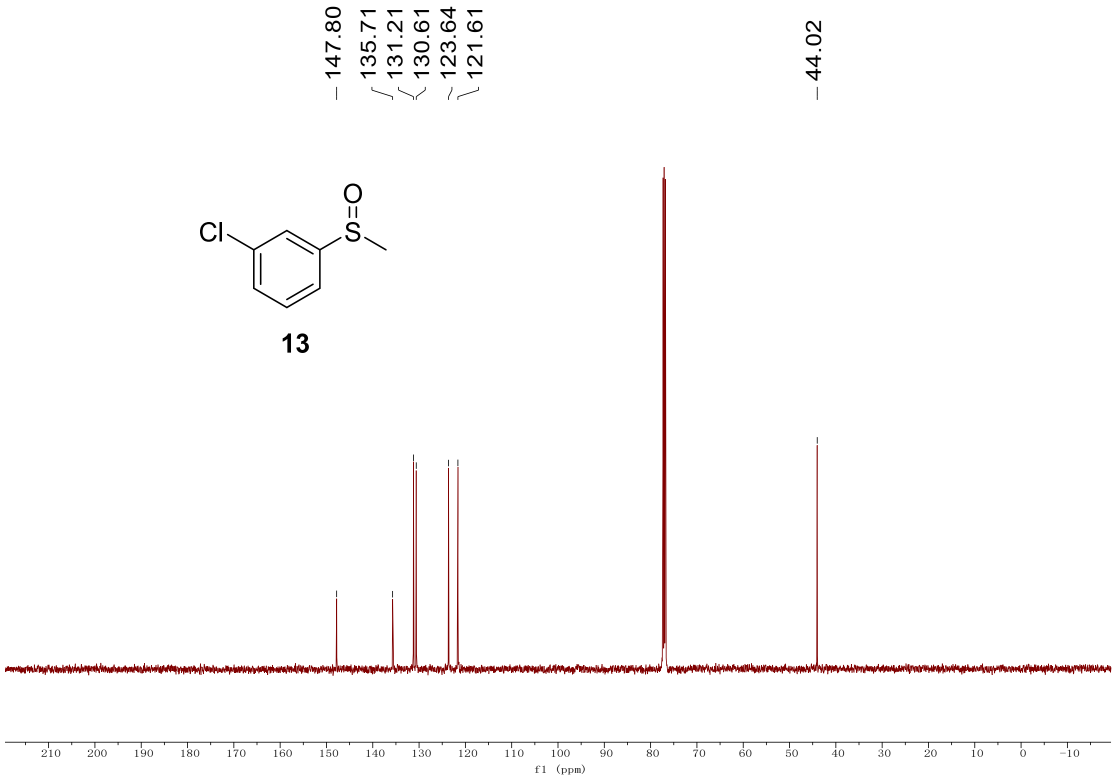
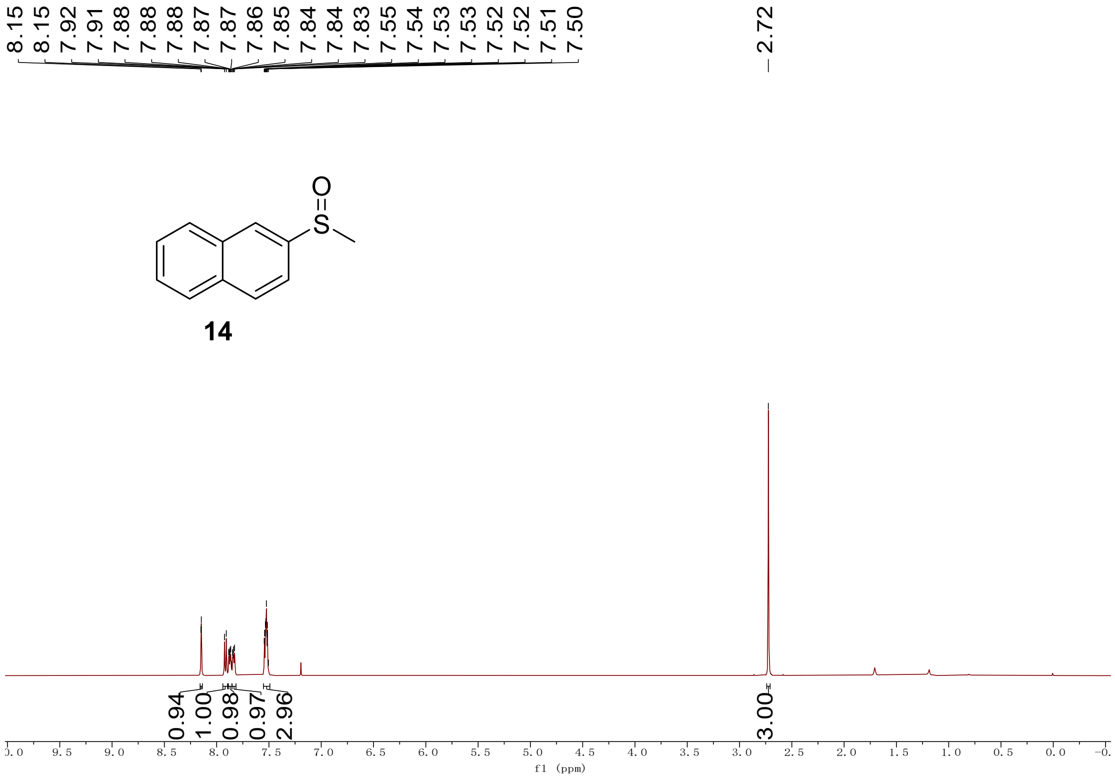
7.49
7.48
7.48
7.48
7.47
7.46
7.46
7.46
7.45
2.73
Cl
S
O
0.93
2.96
3.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0
f1 (ppm)



13

147.80
135.71
131.21
130.61
123.64
121.61
44.02
Cl
S
O
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)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7.91
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7.88
7.88
7.87
7.87
7.86
7.85
7.84
7.84
7.83
7.55
7.54
7.53
7.53
7.52
7.52
7.51
7.50
2.72
O
S
14
0.94
1.00
0.98
0.97
2.96
3.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
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4.0
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3.0
2.5
2.0
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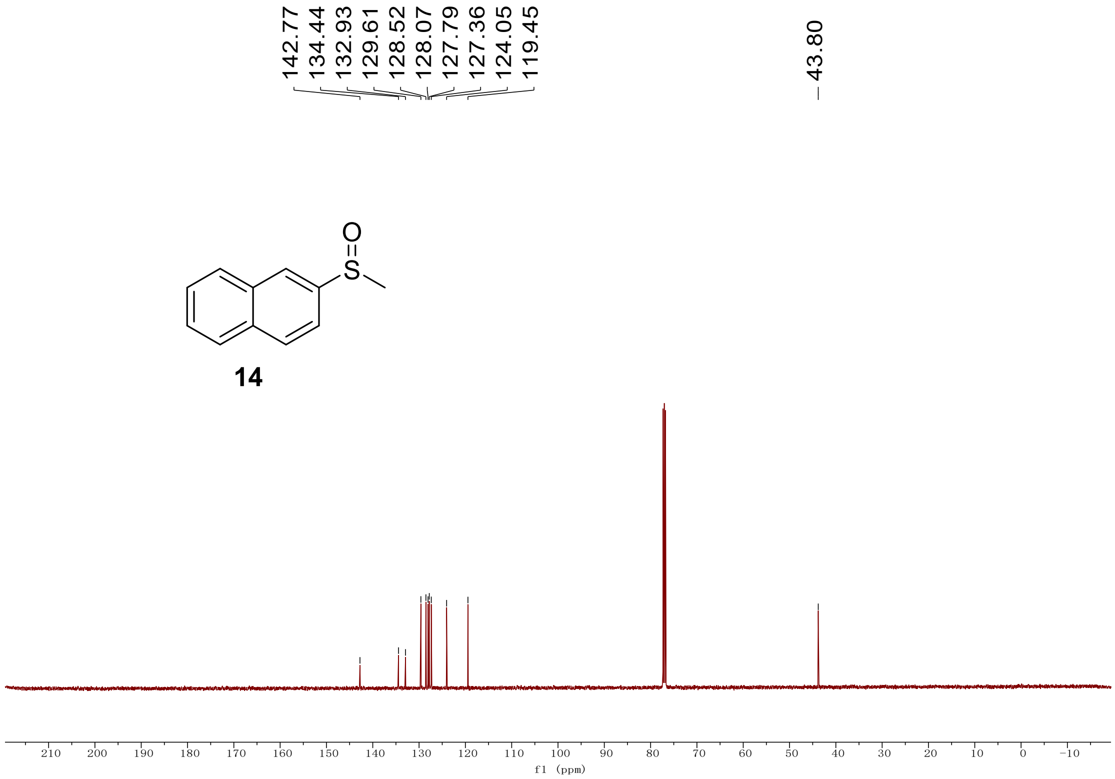
1.0
0.5
0.0
f1 (ppm)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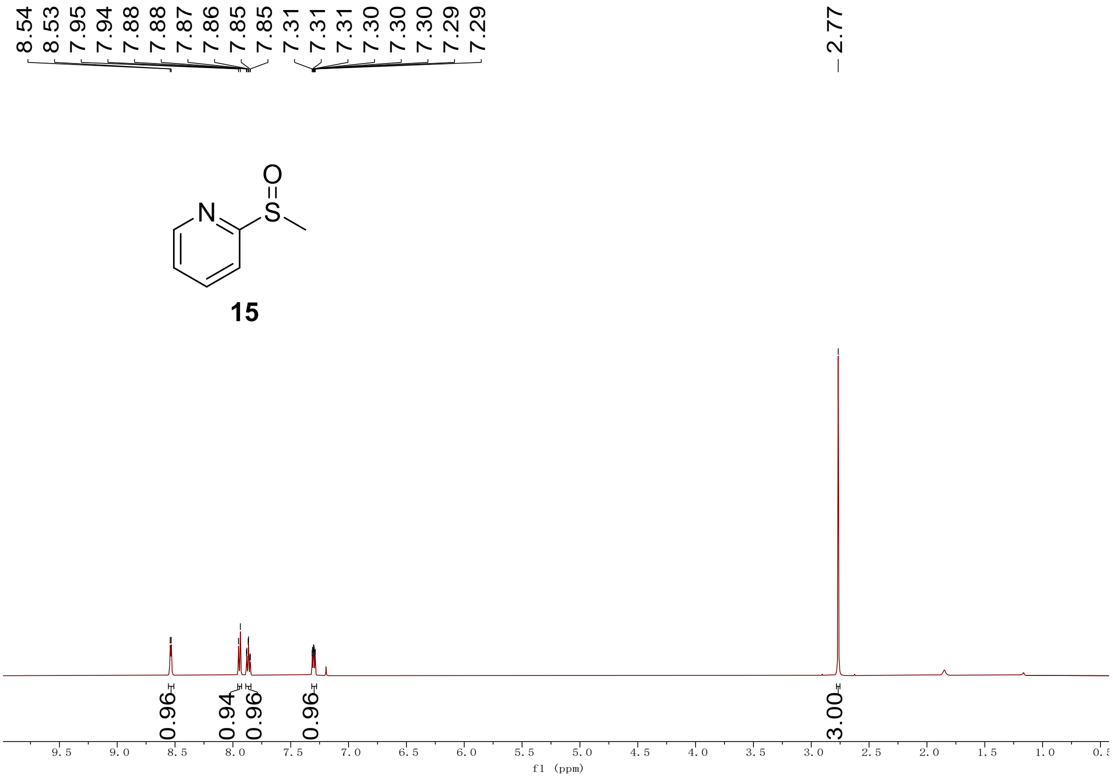
132.93
129.61
128.52
128.07
127.79
127.36
124.05
119.45
43.80
O
S
14
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)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7.87
7.86
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7.85
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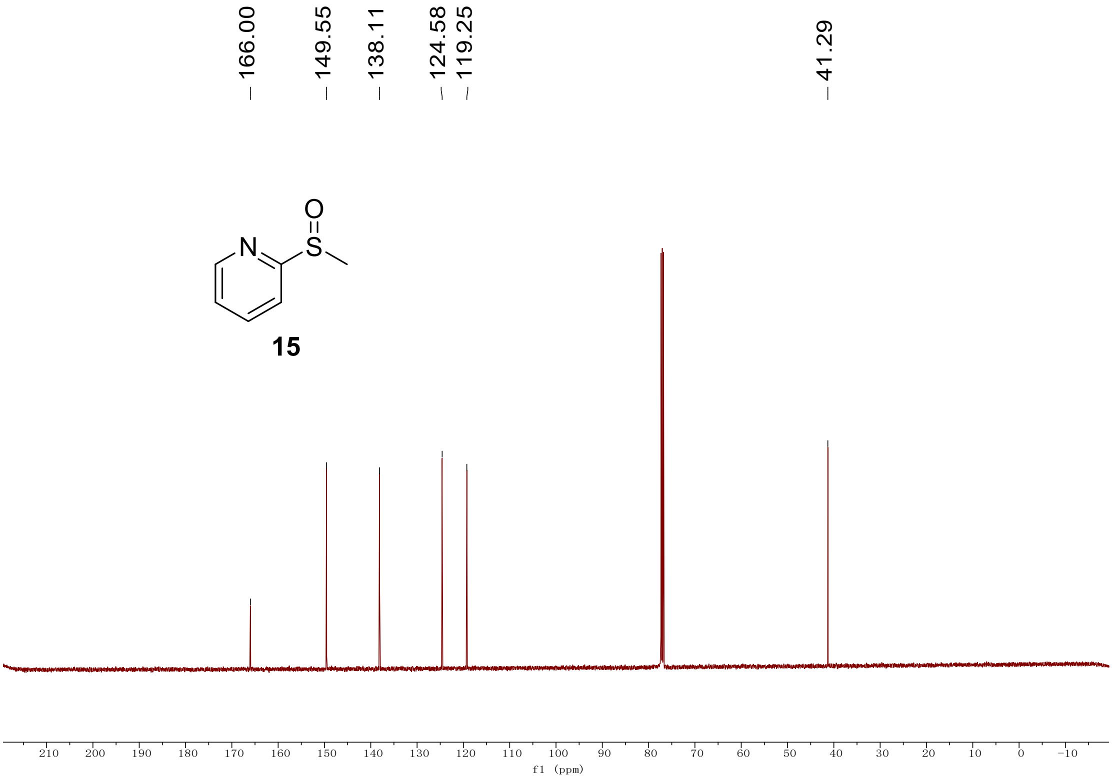
7.31
7.31
7.30
7.30
7.30
7.29
7.29
2.77
N
S
O
15
0.96
0.94
0.96
0.96
3.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
f1 (ppm)


166.00
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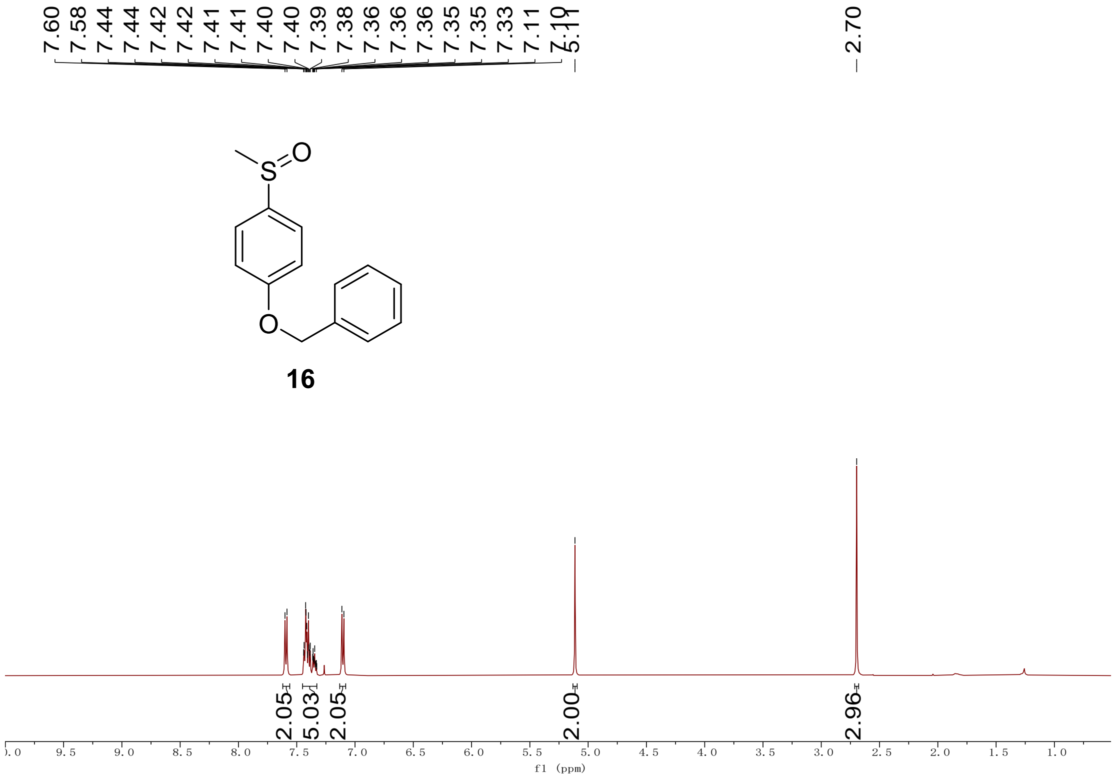
138.11
124.58
119.25
41.29
N
S
O
15
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)


16

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7.38
7.36
7.36
7.36
7.35
7.35
7.33
7.11
7.10
5.11
2.70
2.05
5.03
2.05
2.00
2.96
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
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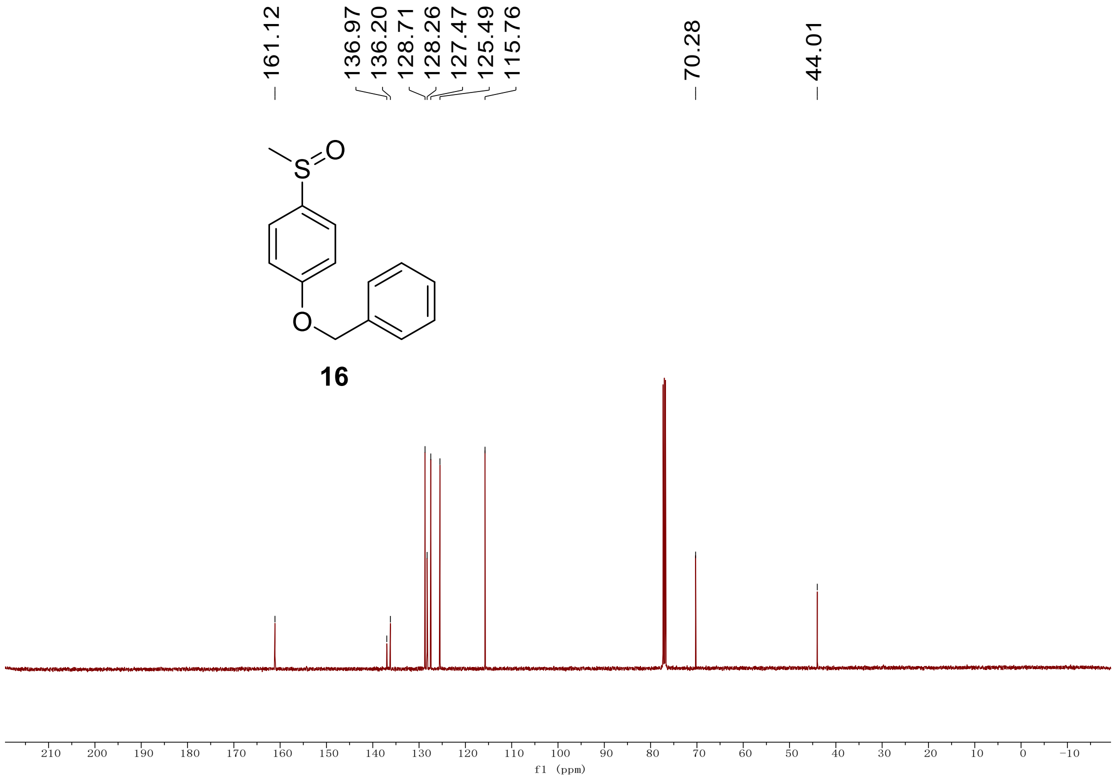
1.0
f1 (ppm)


16

161.12
136.97
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128.26
127.47
125.49
115.76
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44.01
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200
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180
170
160
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140
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100
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80
70
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30
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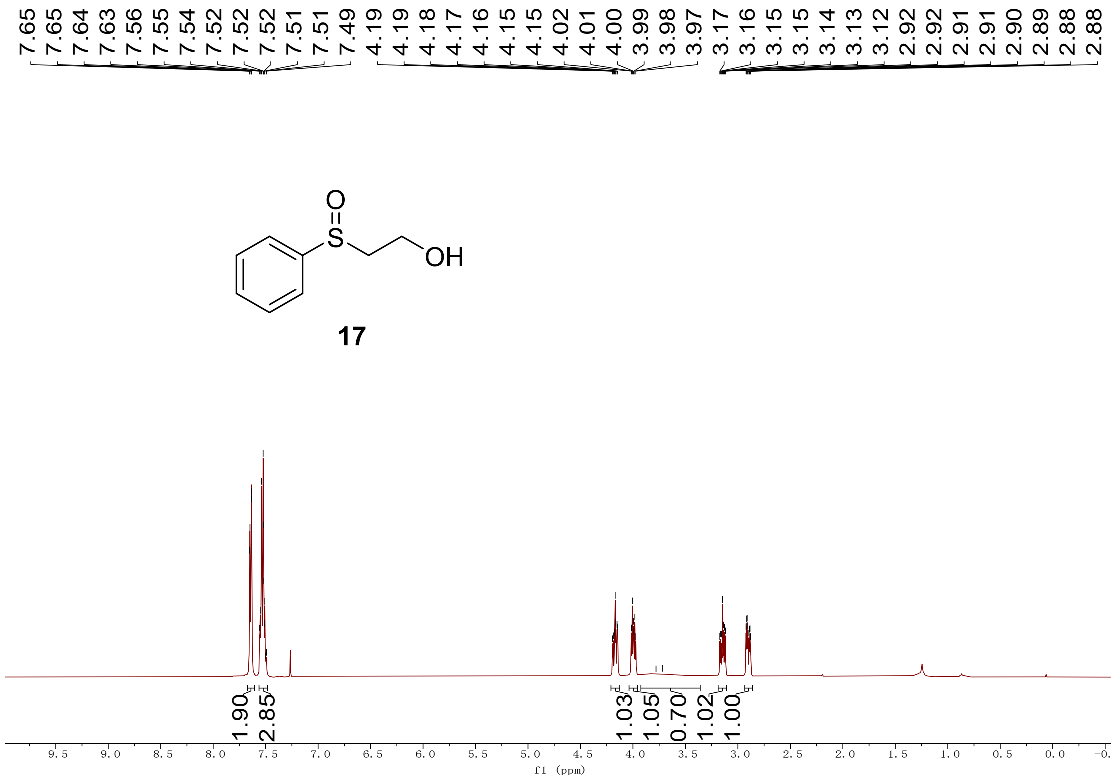
0
-10
f1 (ppm)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7.55
7.54
7.52
7.52
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7.51
7.51
7.49
4.19
4.19
4.18
4.17
4.16
4.15
4.15
4.02
4.01
4.00
3.99
3.98
3.97
3.17
3.16
3.15
3.15
3.14
3.13
3.12
2.92
2.92
2.91
2.91
2.90
2.89
2.88
2.88
O
S
OH
17
1.90
2.85
1.03
1.05
0.70
1.02
1.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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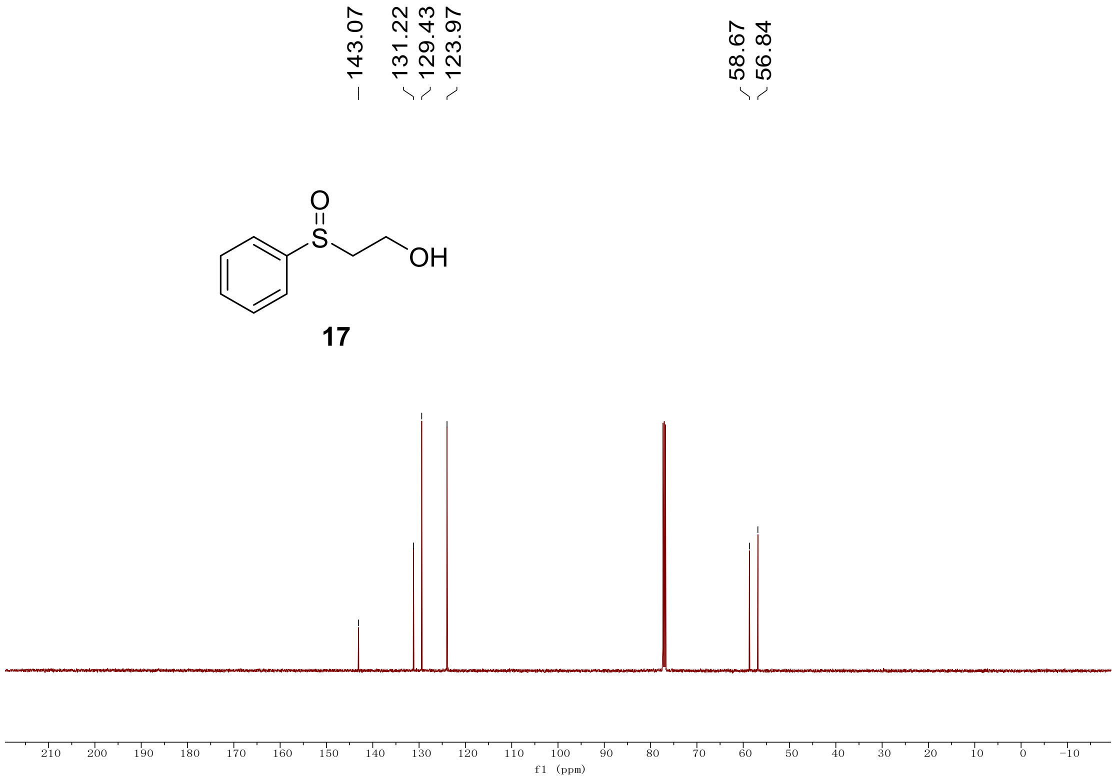
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)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129.43
123.97
58.67
56.84
O
S
OH
17
210
200
190
180
170
160
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140
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120
110
100
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80
70
60
50
40
30
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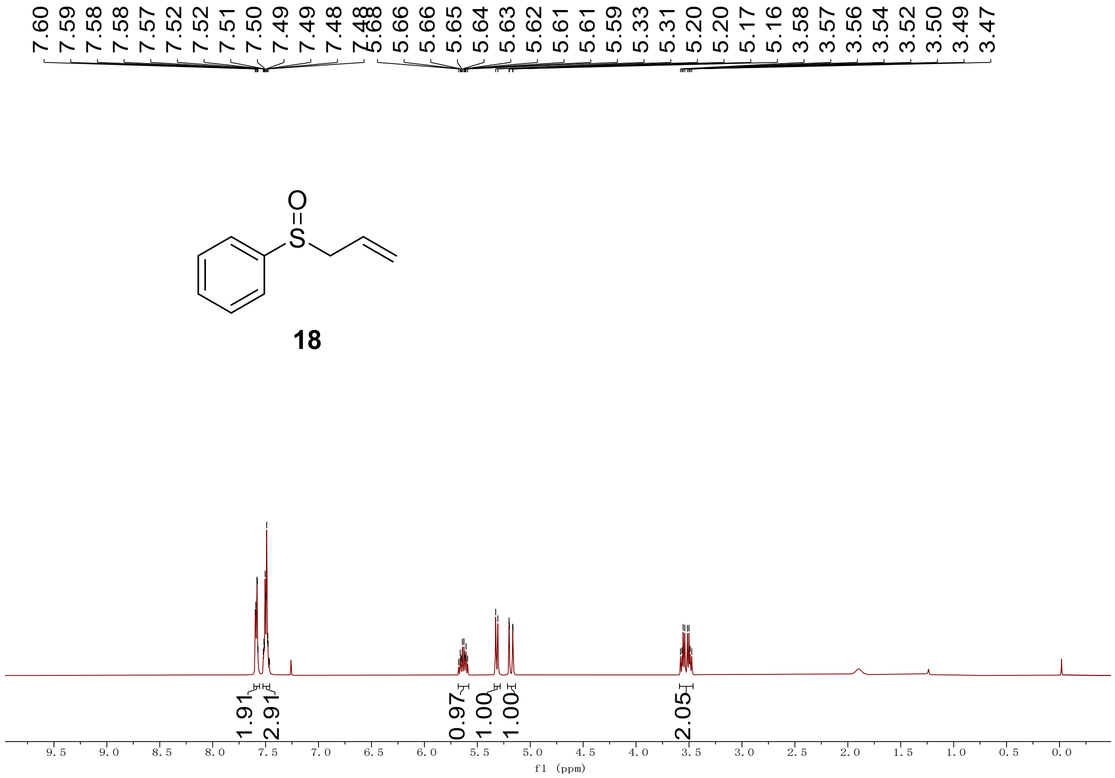
0
-10
f1 (ppm)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7.51
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7.49
7.49
7.48
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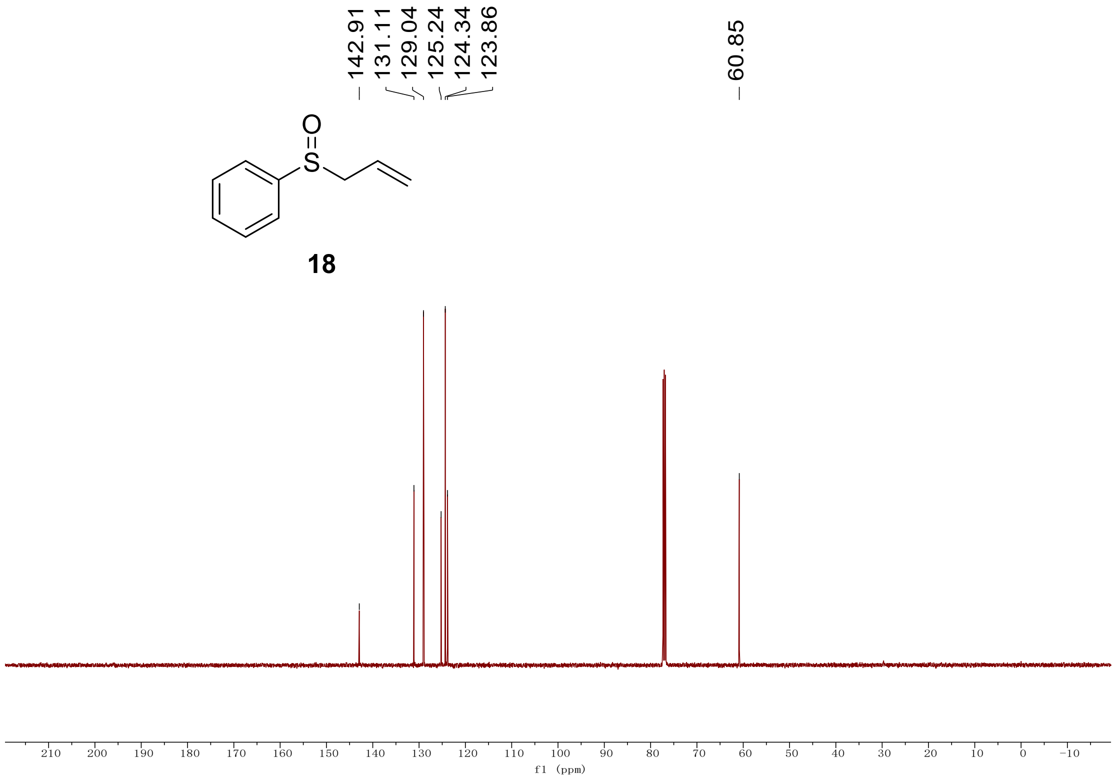
5.68
5.66
5.66
5.65
5.64
5.63
5.62
5.61
5.61
5.59
5.33
5.31
5.20
5.20
5.17
5.16
3.58
3.57
3.56
3.54
3.52
3.50
3.49
3.47
O
S
1.91
2.91
0.97
1.00
1.00
2.05
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

18


142.91
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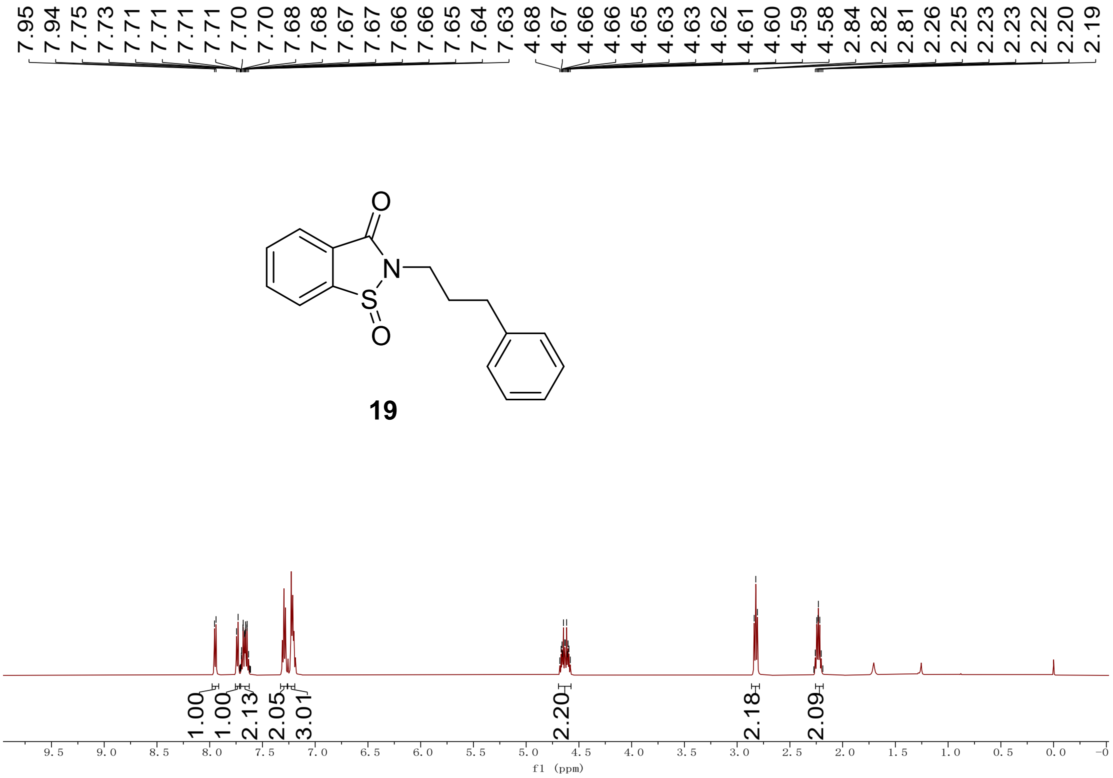
129.04
125.24
124.34
123.86
60.85
O
S
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
−10
f1 (ppm)

18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7.71
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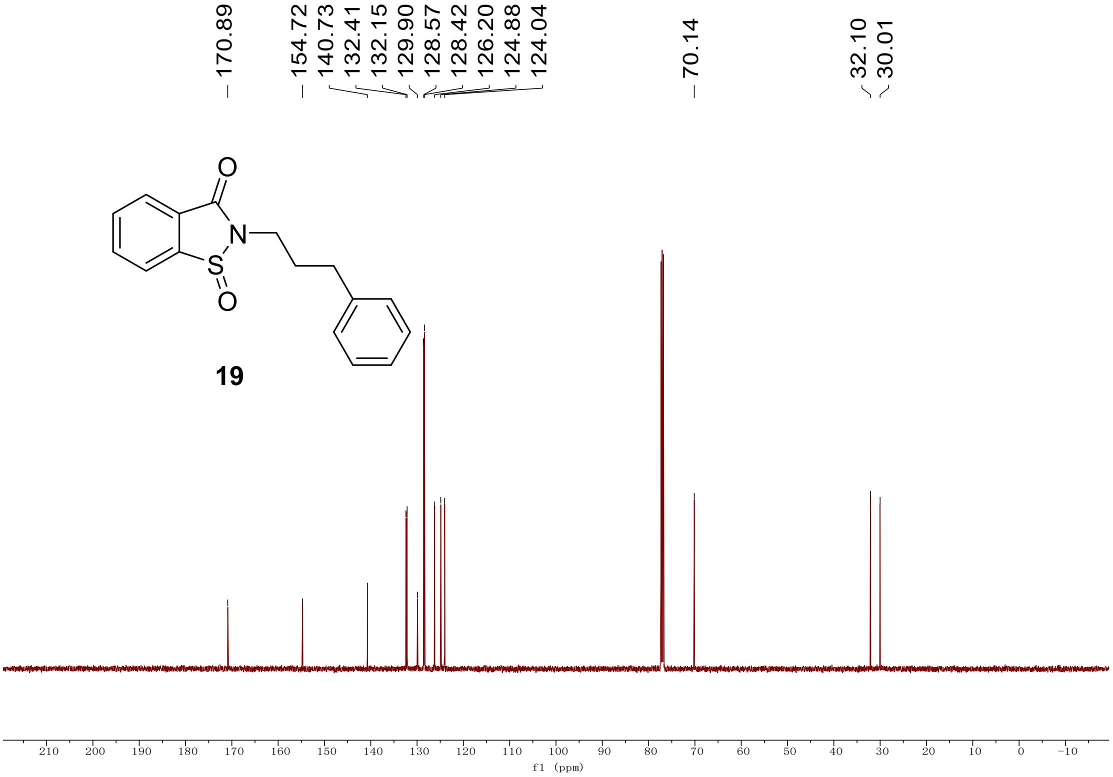
7.70
7.68
7.68
7.67
7.67
7.66
7.66
7.65
7.64
7.63
4.68
4.67
4.66
4.66
4.65
4.63
4.63
4.62
4.61
4.60
4.59
4.58
2.84
2.82
2.81
2.26
2.25
2.23
2.23
2.22
2.20
2.19
O
N
S
O
1.00
1.00
2.13
2.05
3.01
2.20
2.18
2.09
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0
f1 (ppm)

19


170.89
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140.73
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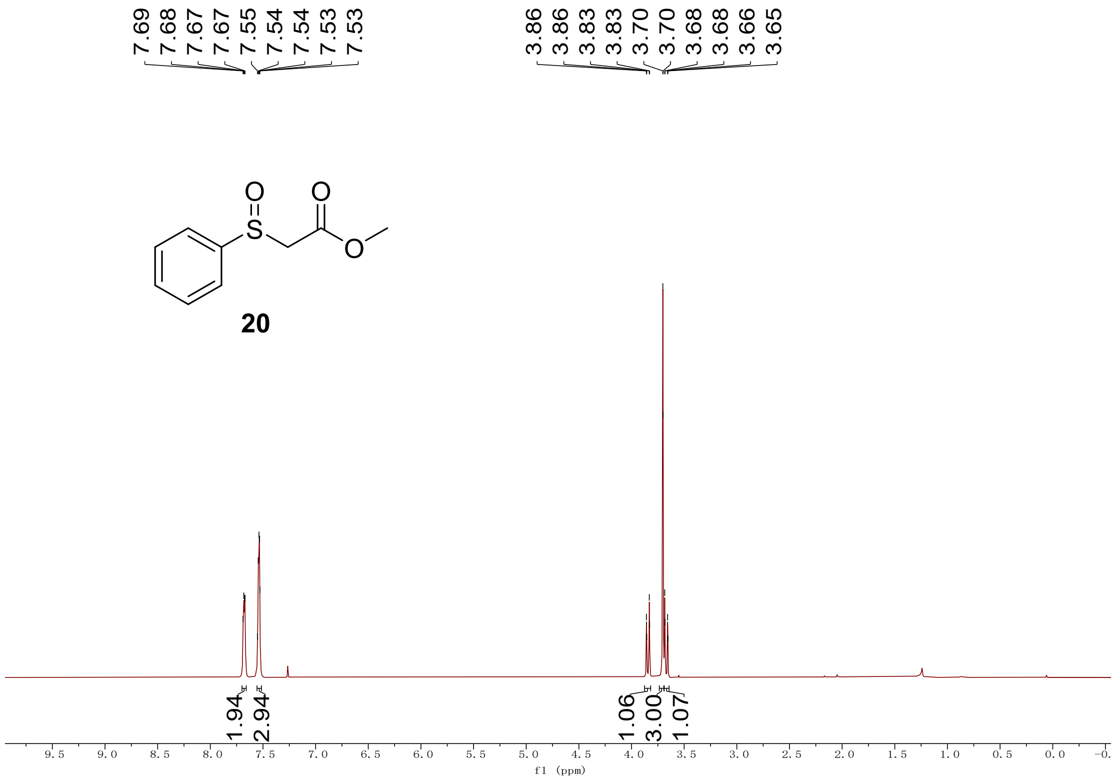
129.90
128.57
128.42
126.20
124.88
124.04
70.14
32.10
30.01
O
N
S
O
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

19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7.53
7.53
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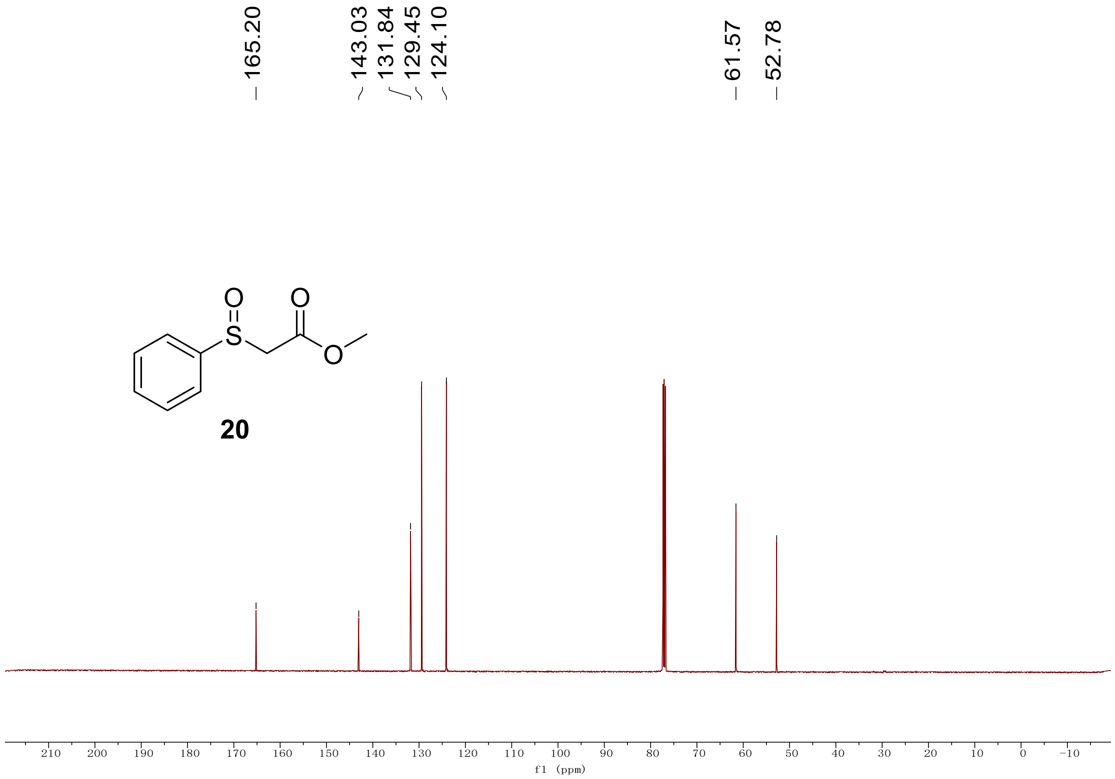
3.86
3.83
3.83
3.70
3.70
3.68
3.68
3.66
3.65
20
1.94
2.94
1.06
3.00
1.07
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.
f1 (ppm)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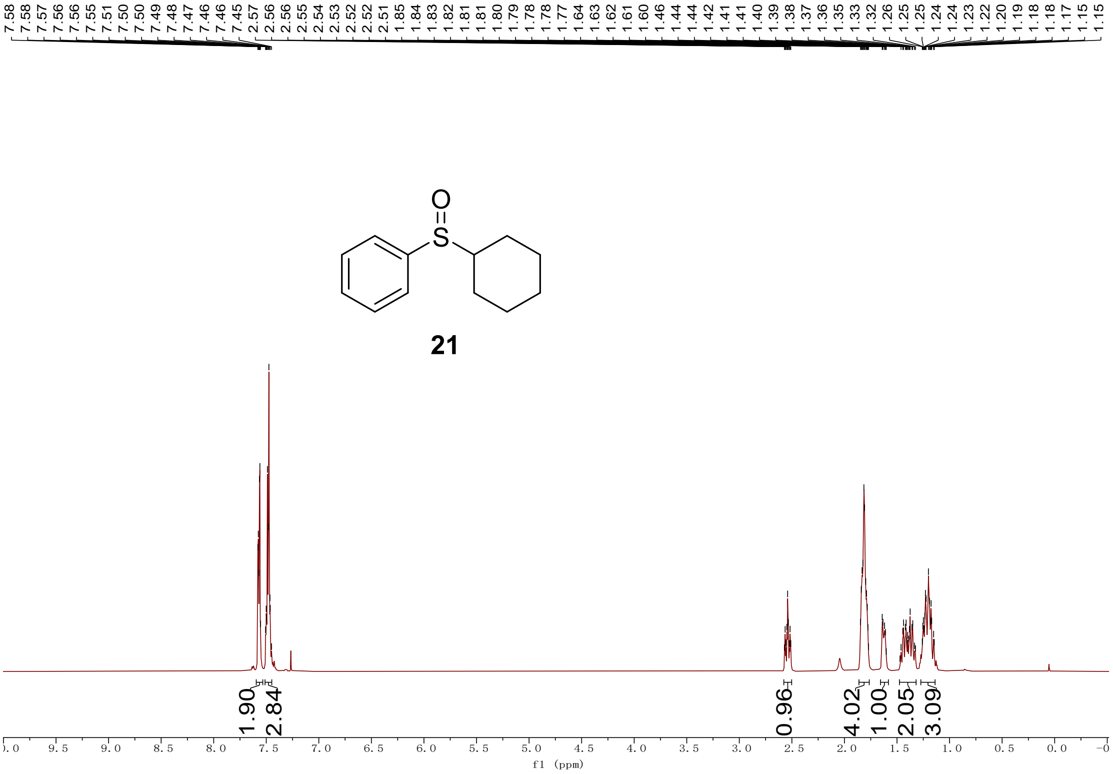
129.45
124.10
61.57
52.78
20
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)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7.50
7.50
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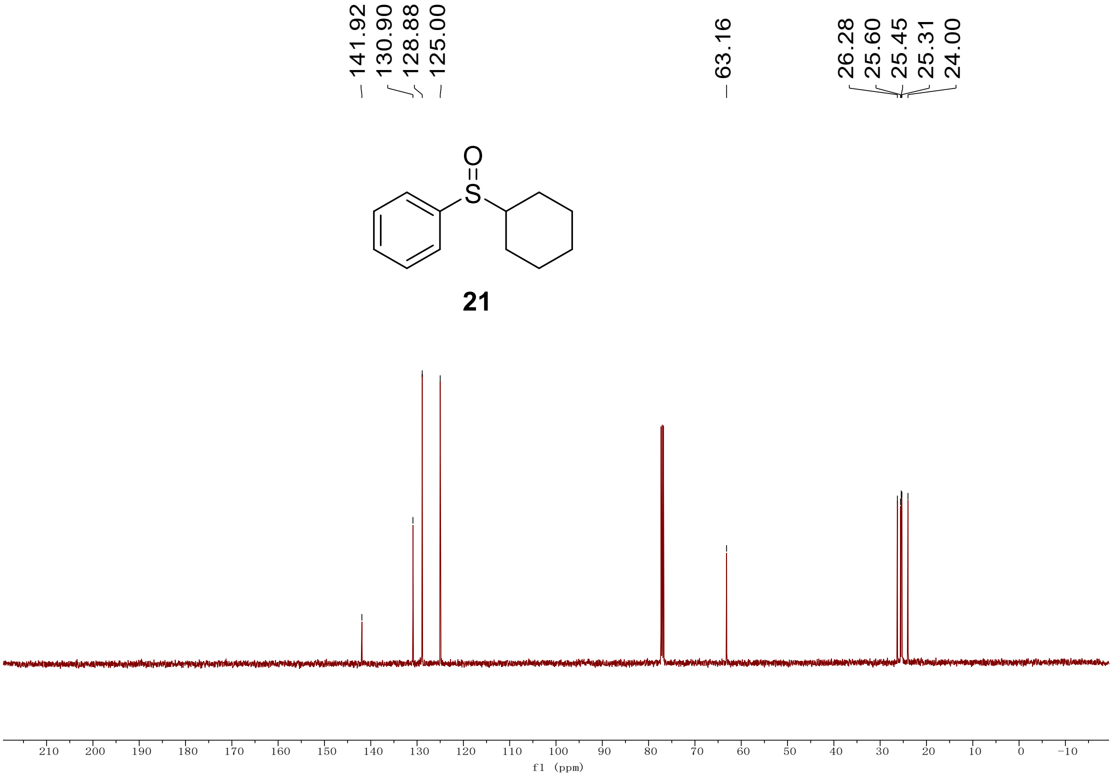
7.48
7.47
7.46
7.45
2.57
2.56
2.56
2.55
2.54
2.53
2.52
2.52
2.51
1.85
1.84
1.83
1.82
1.81
1.81
1.80
1.79
1.78
1.78
1.77
1.64
1.63
1.62
1.61
1.60
1.46
1.44
1.42
1.41
1.40
1.39
1.38
1.37
1.36
1.35
1.33
1.32
1.26
1.25
1.25
1.24
1.24
1.23
1.22
1.20
1.19
1.18
1.18
1.17
1.15
1.15
O
S
21
1.90
2.84
0.96
4.02
1.00
2.05
3.09
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0
f1 (ppm)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125.00
63.16
26.28
25.60
25.45
25.31
24.00
O
S
21
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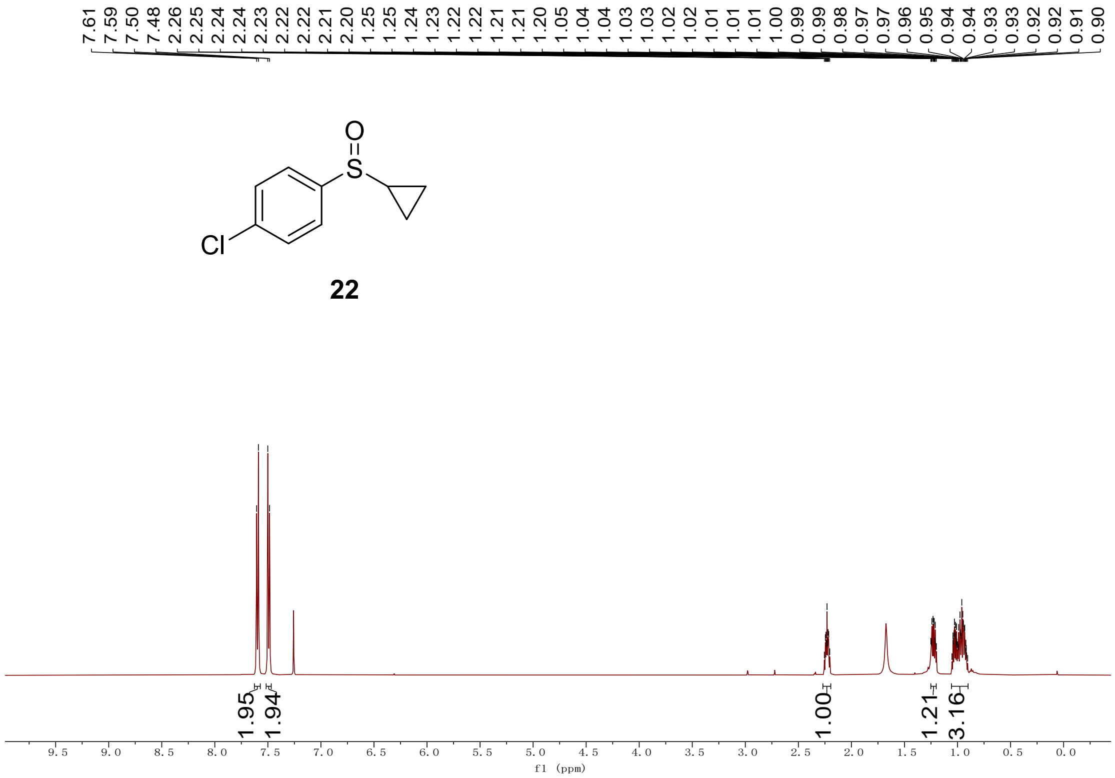
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)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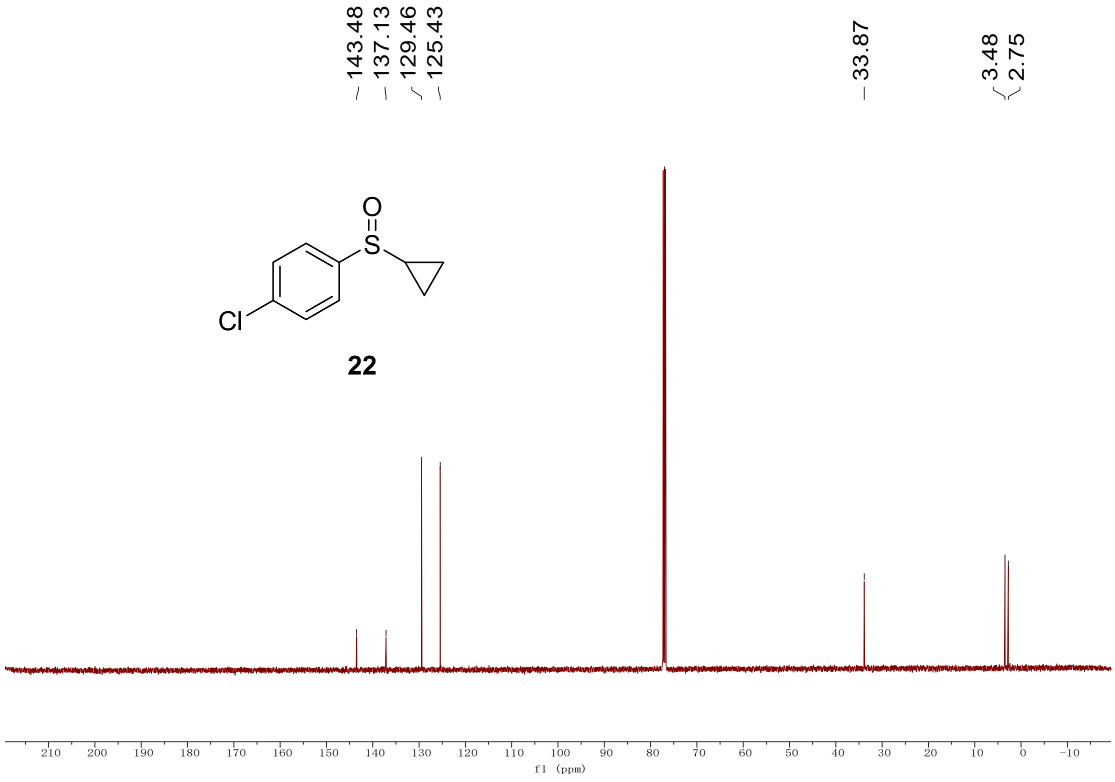
2.24
2.23
2.22
2.22
2.21
2.20
1.25
1.25
1.24
1.23
1.22
1.22
1.21
1.21
1.20
1.05
1.04
1.04
1.03
1.03
1.02
1.02
1.01
1.01
1.01
1.00
0.99
0.99
0.98
0.97
0.97
0.96
0.95
0.94
0.94
0.93
0.93
0.92
0.92
0.91
0.90
O
S
Cl
1.95
1.94
1.00
1.21
3.16
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

22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33.87
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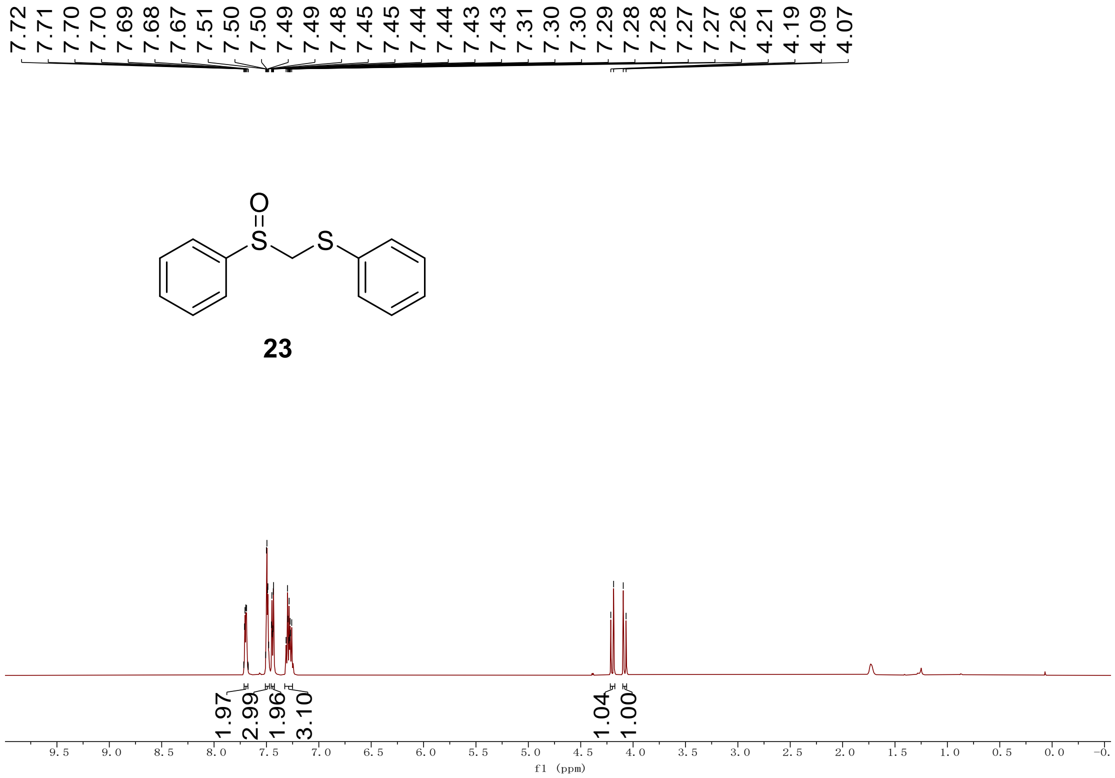
O
S
Cl
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

22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7.50
7.49
7.49
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7.45
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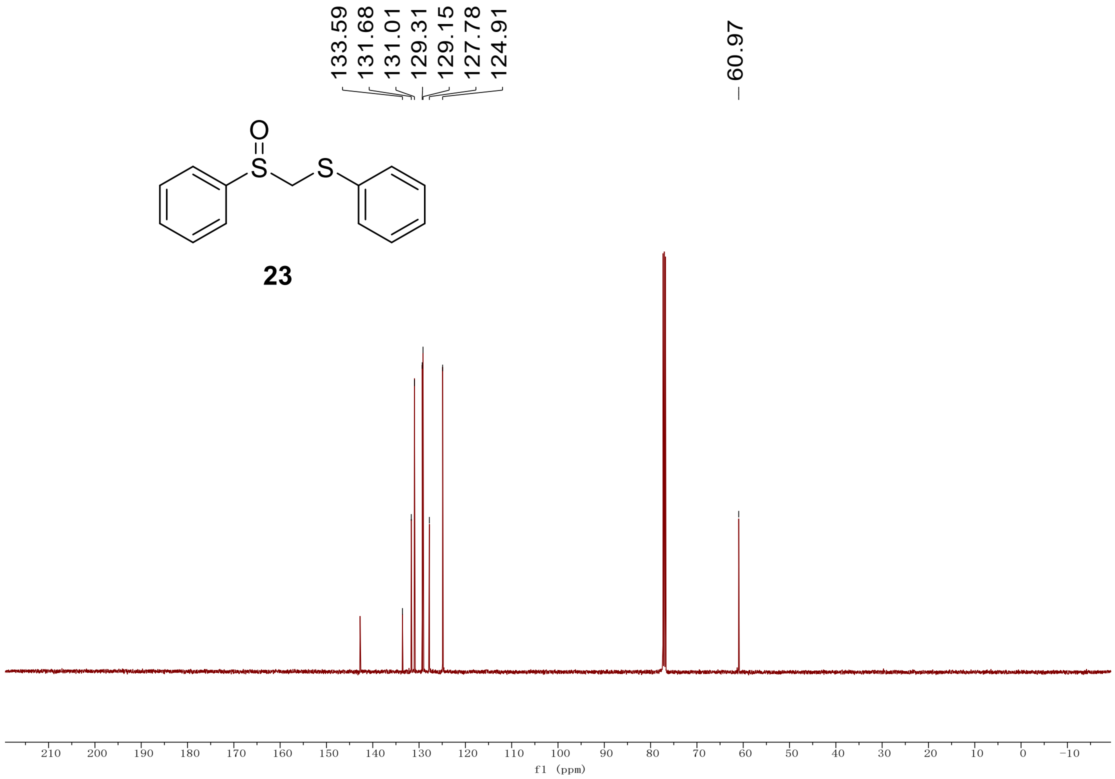
7.43
7.43
7.31
7.30
7.30
7.29
7.28
7.28
7.27
7.27
7.26
4.21
4.19
4.09
4.07
O
S
S
1.97
2.99
1.96
3.10
1.04
1.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)

23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127.78
124.91
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O
S
S
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
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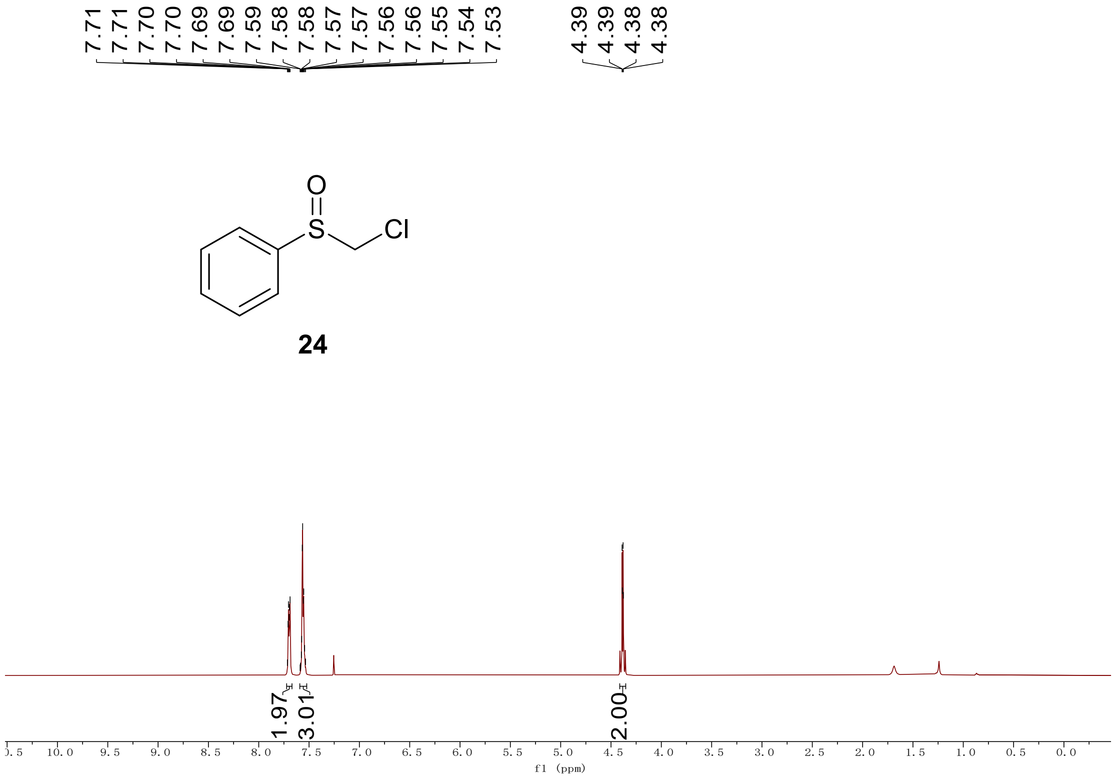
20
10
0
-10
f1 (ppm)

23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7.69
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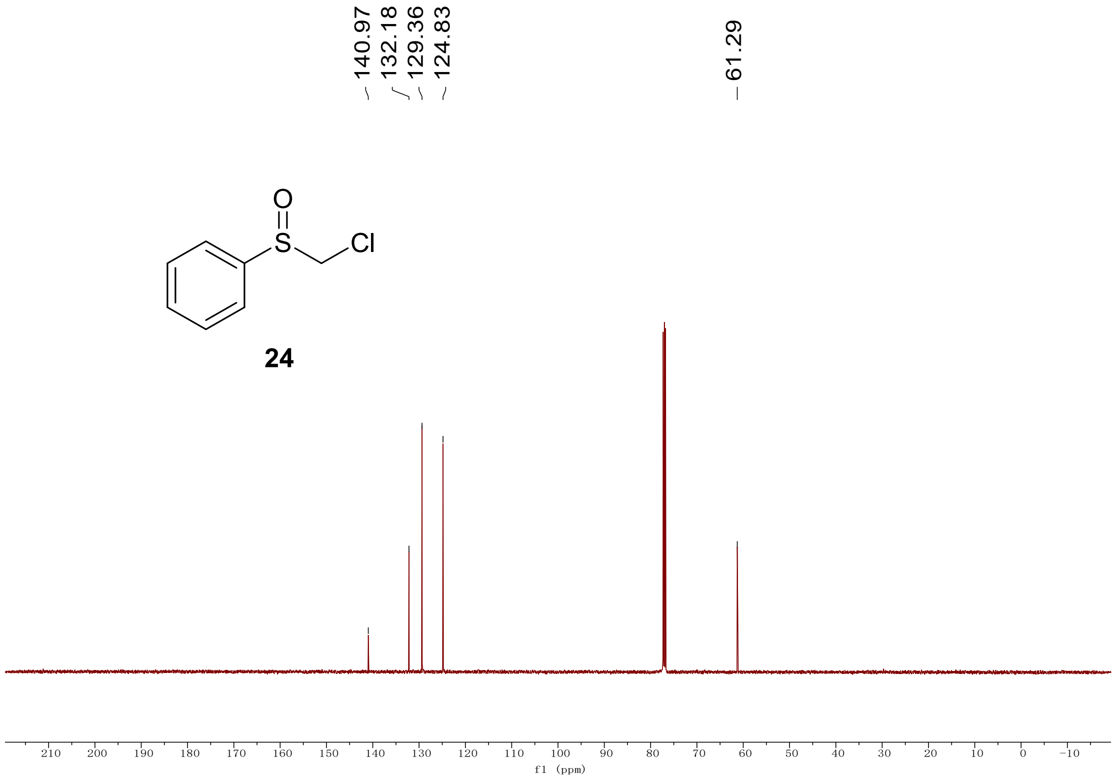
7.56
7.56
7.55
7.54
7.53
4.39
4.39
4.38
4.38
O
S
Cl
24
1.97
3.01
2.00
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


140.97
132.18
129.36
124.83
61.29
O
S
Cl
24
210
200
190
180
170
160
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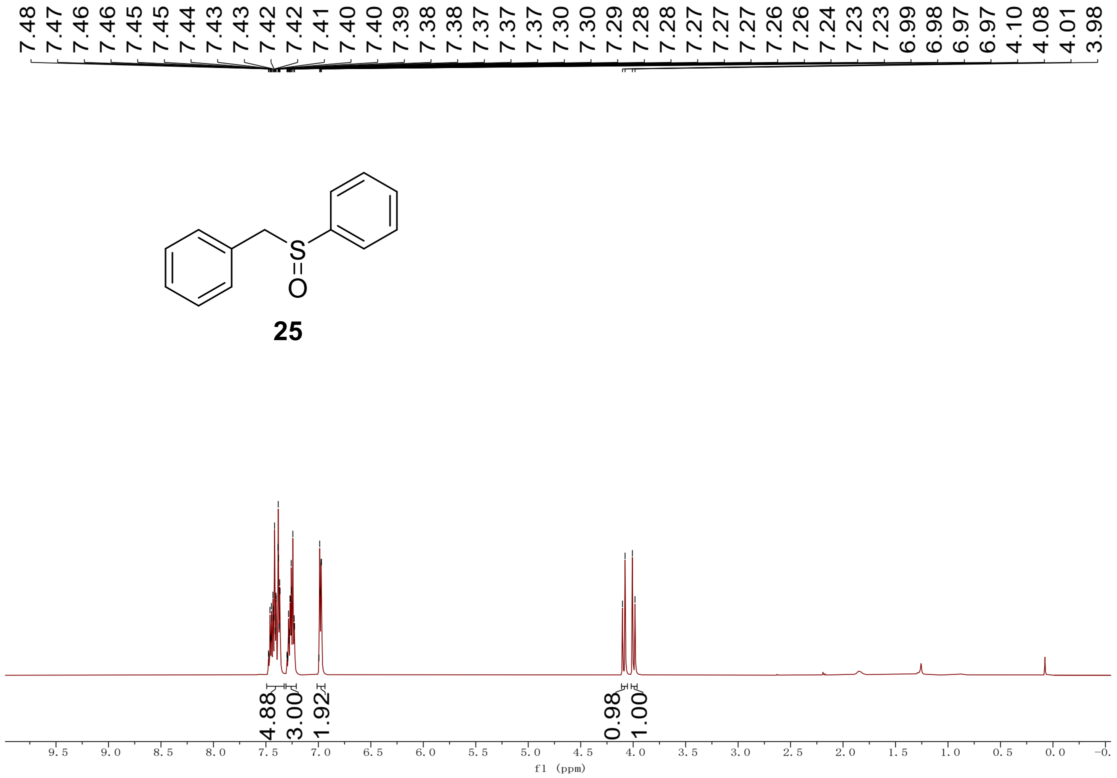
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)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7.40
7.40
7.39
7.38
7.38
7.37
7.37
7.37
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7.30
7.29
7.28
7.28
7.27
7.27
7.27
7.26
7.26
7.24
7.23
7.23
6.99
6.98
6.97
6.97
4.10
4.08
4.01
3.98
S
O
25
4.88
3.00
1.92
0.98
1.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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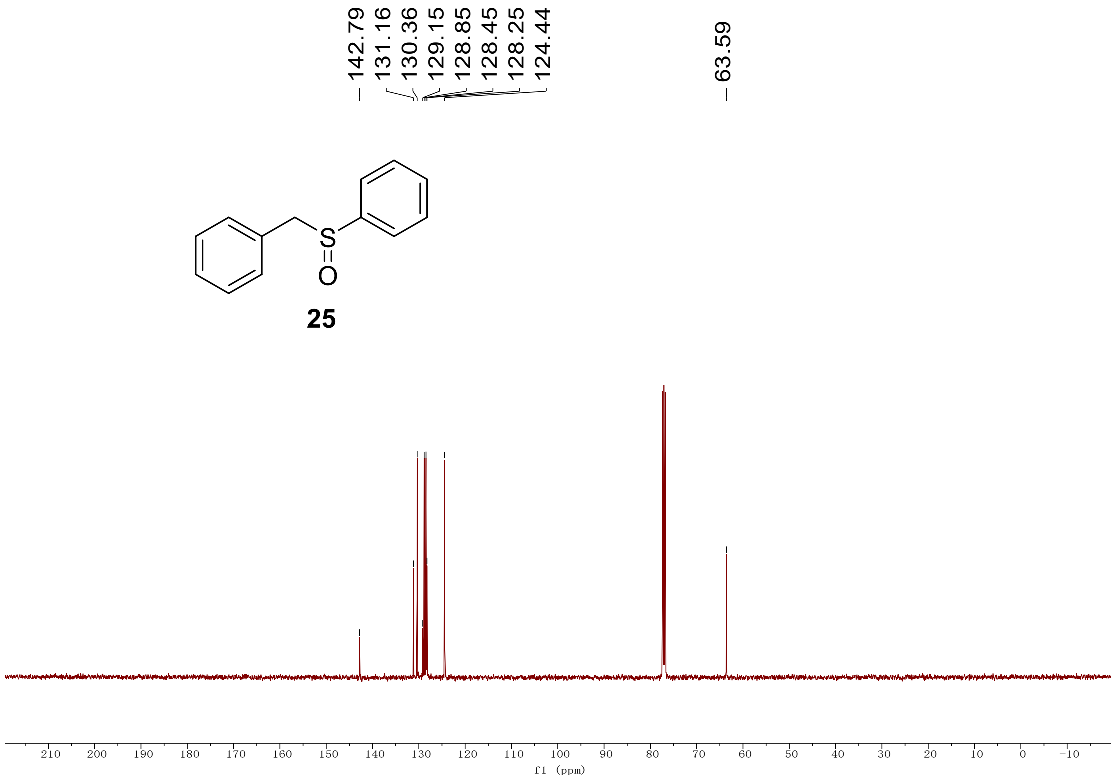
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)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124.44
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S
O
25
210
200
190
180
170
160
150
140
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100
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80
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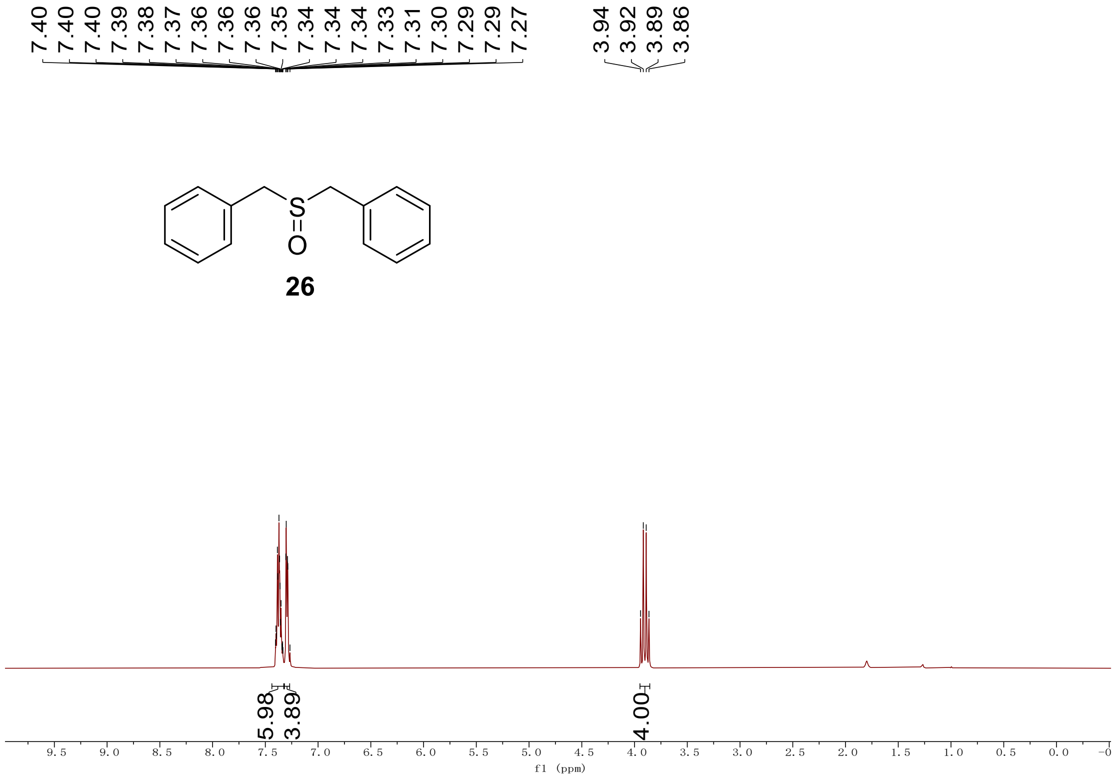
60
50
40
30
20
10
0
-10
f1 (ppm)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7.34
7.33
7.31
7.30
7.29
7.29
7.27
3.94
3.92
3.89
3.86
S
O
26
5.98
3.89
4.00
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9.0
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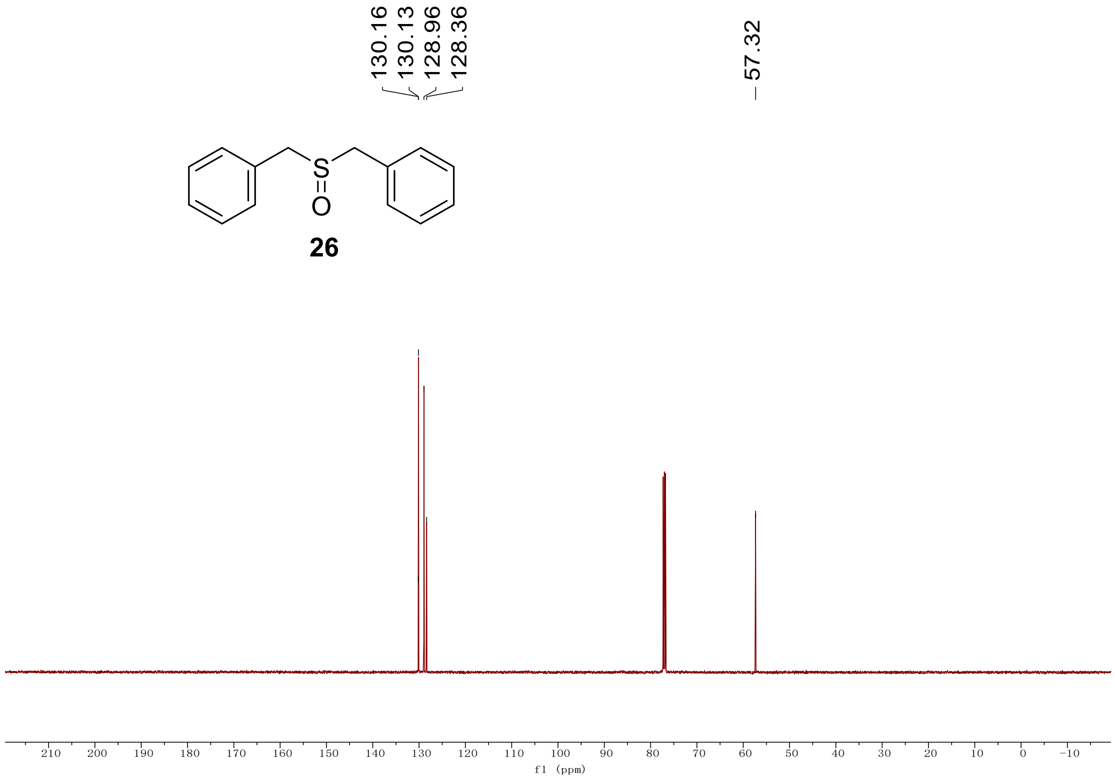
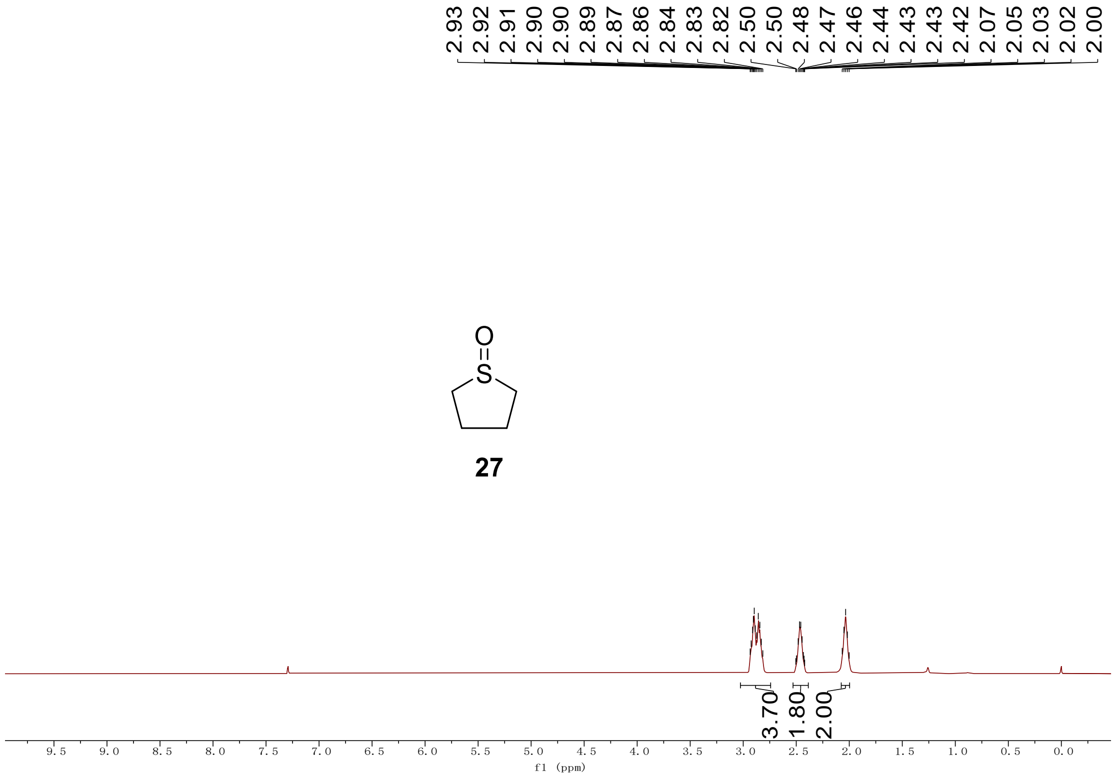
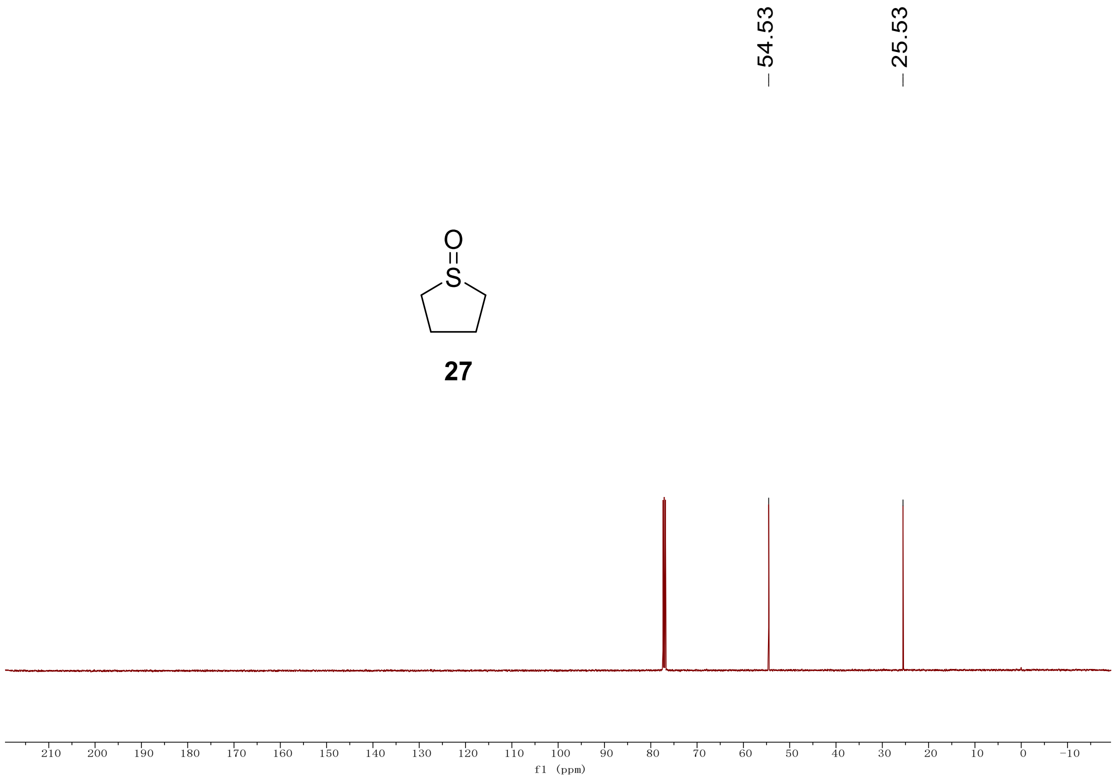
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0
f1 (ppm)


130.16
130.13
128.96
128.36
57.32
S
O
26
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)



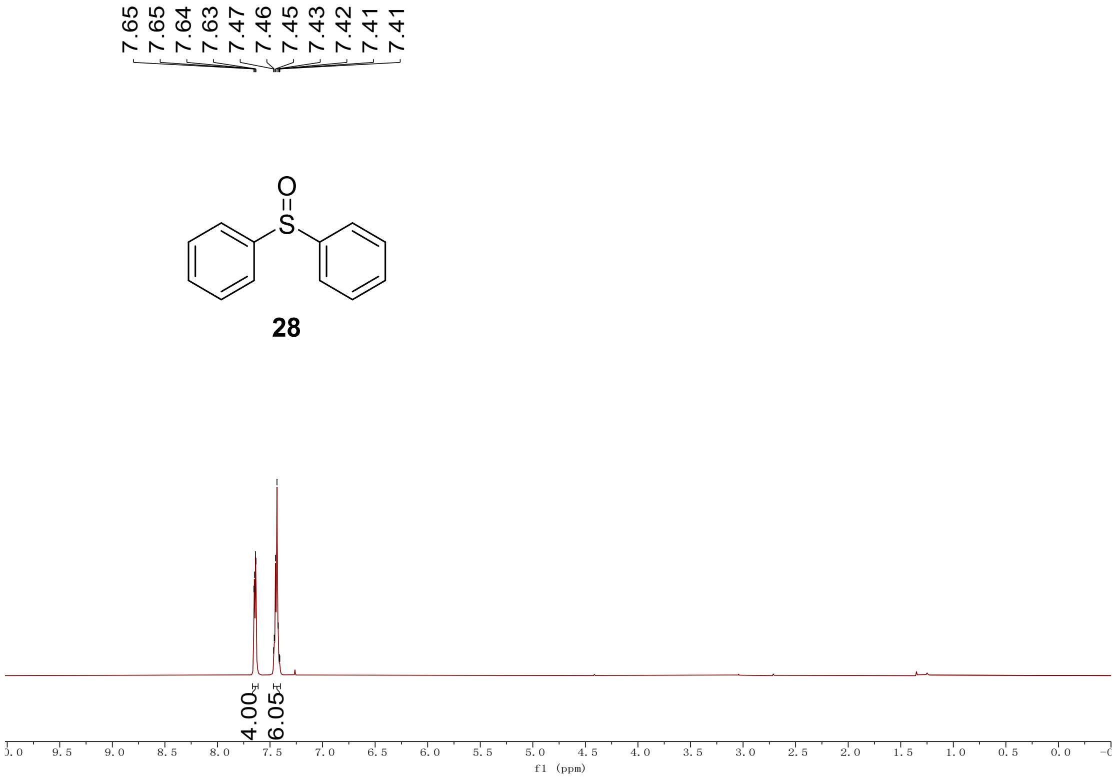
27

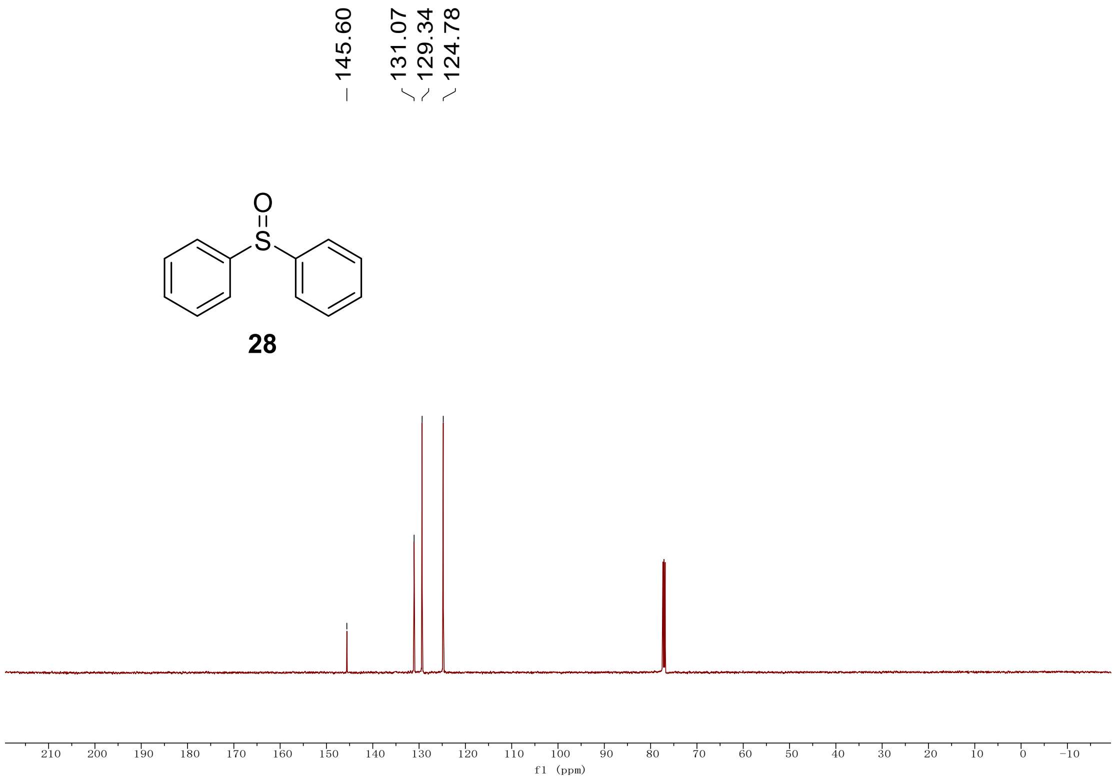
2.93
2.92
2.91
2.90
2.90
2.89
2.87
2.86
2.84
2.83
2.82
2.50
2.50
2.48
2.47
2.46
2.44
2.43
2.43
2.42
2.07
2.05
2.03
2.02
2.00
O
S
3.70
1.80
2.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

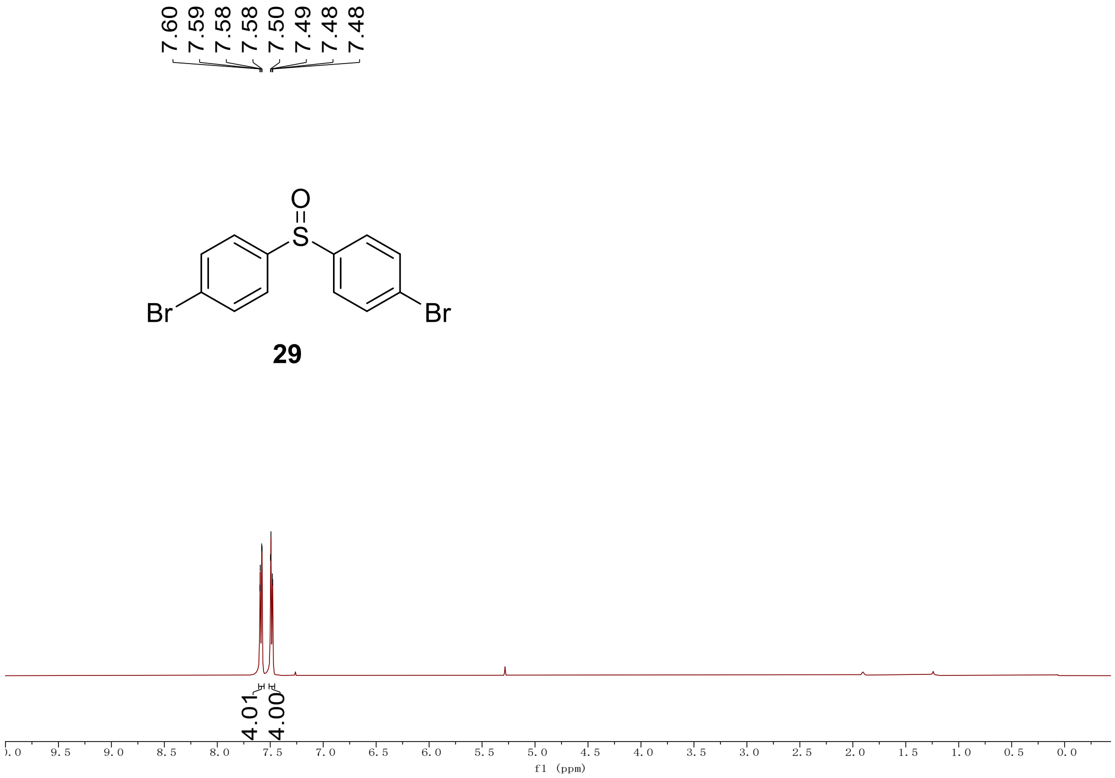


27

54.53
25.53
O
S
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 −10
f1 (ppm)

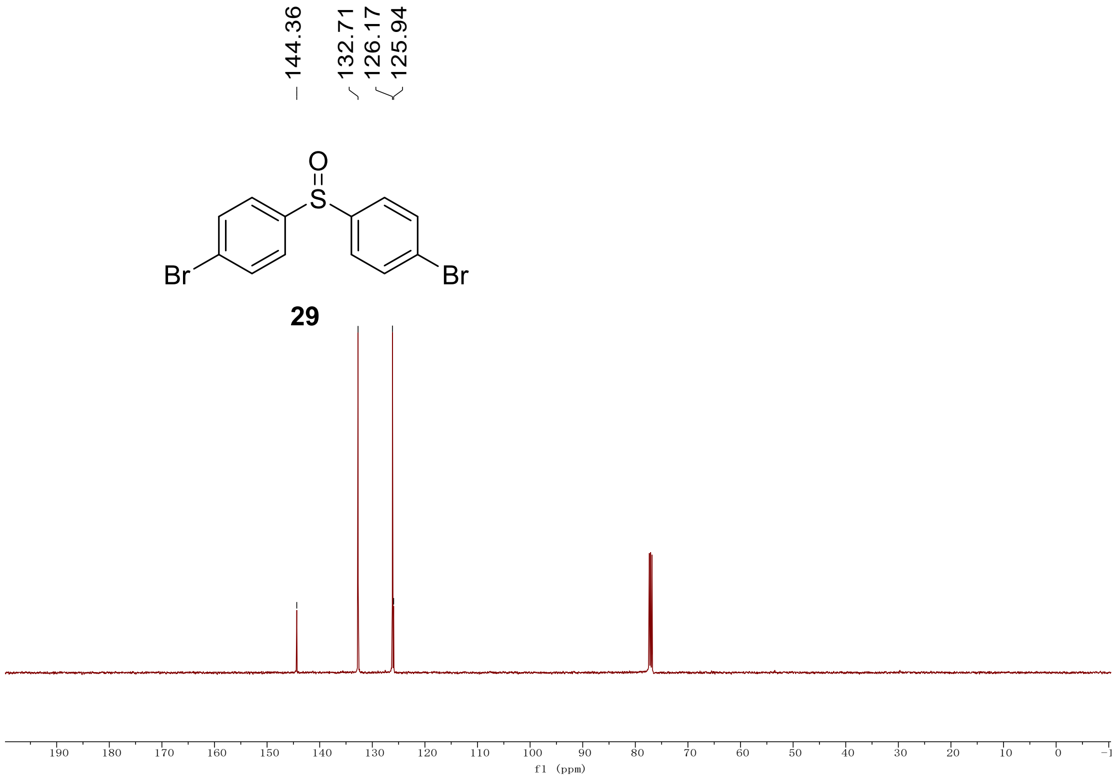

7.65
7.65
7.64
7.63
7.47
7.46
7.45
7.43
7.42
7.41
7.41
28
4.00
6.05
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


145.60
131.07
129.34
124.78
28
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)



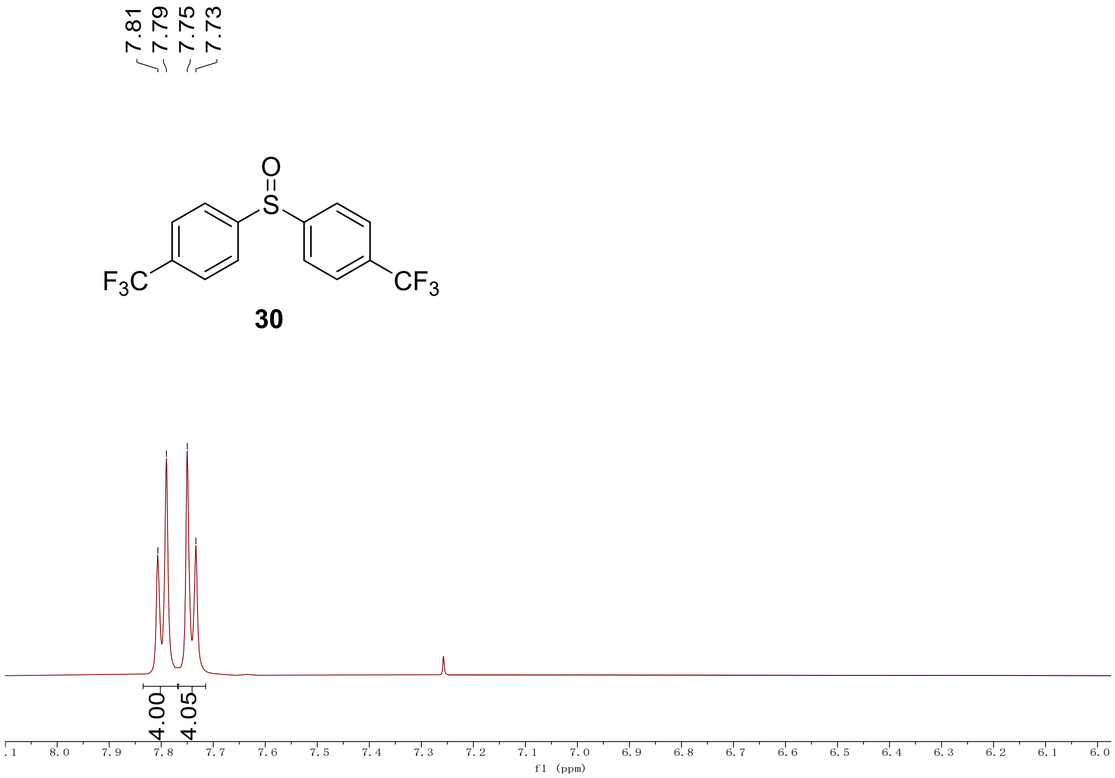
7.60
7.59
7.58
7.58
7.50
7.49
7.48
7.48
O
S
Br
Br
4.01
4.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

29

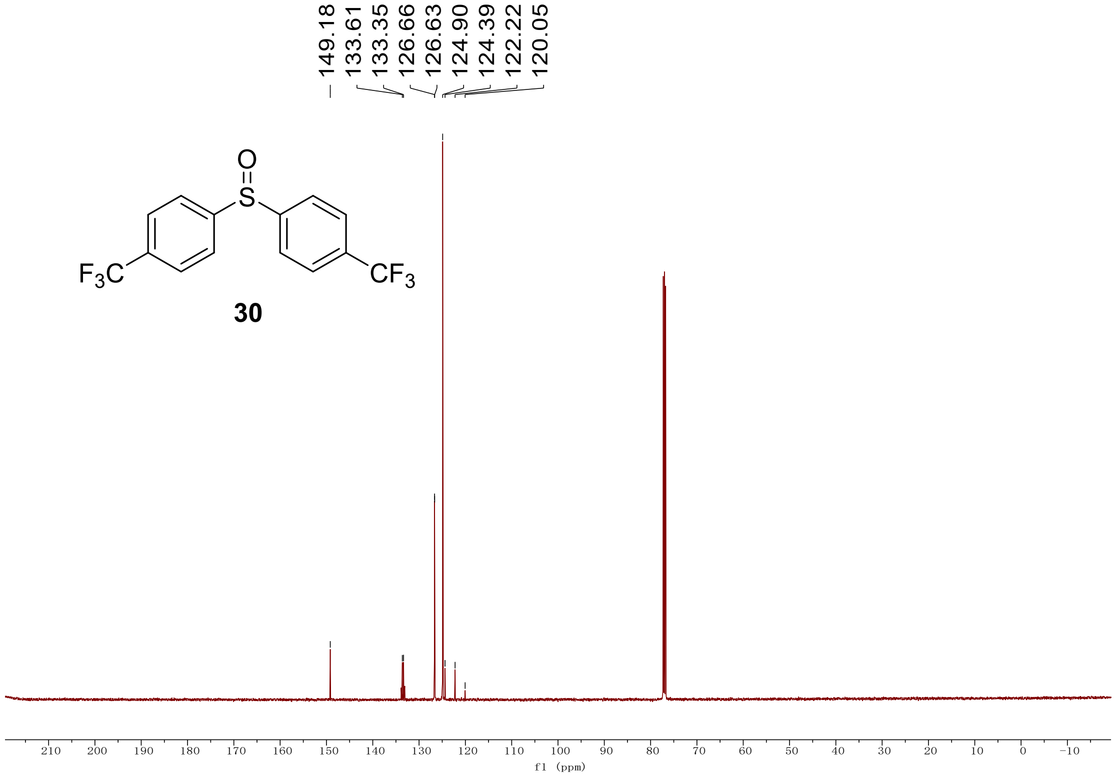


144.36
132.71
126.17
125.94
O
S
Br
Br
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
f1 (ppm)

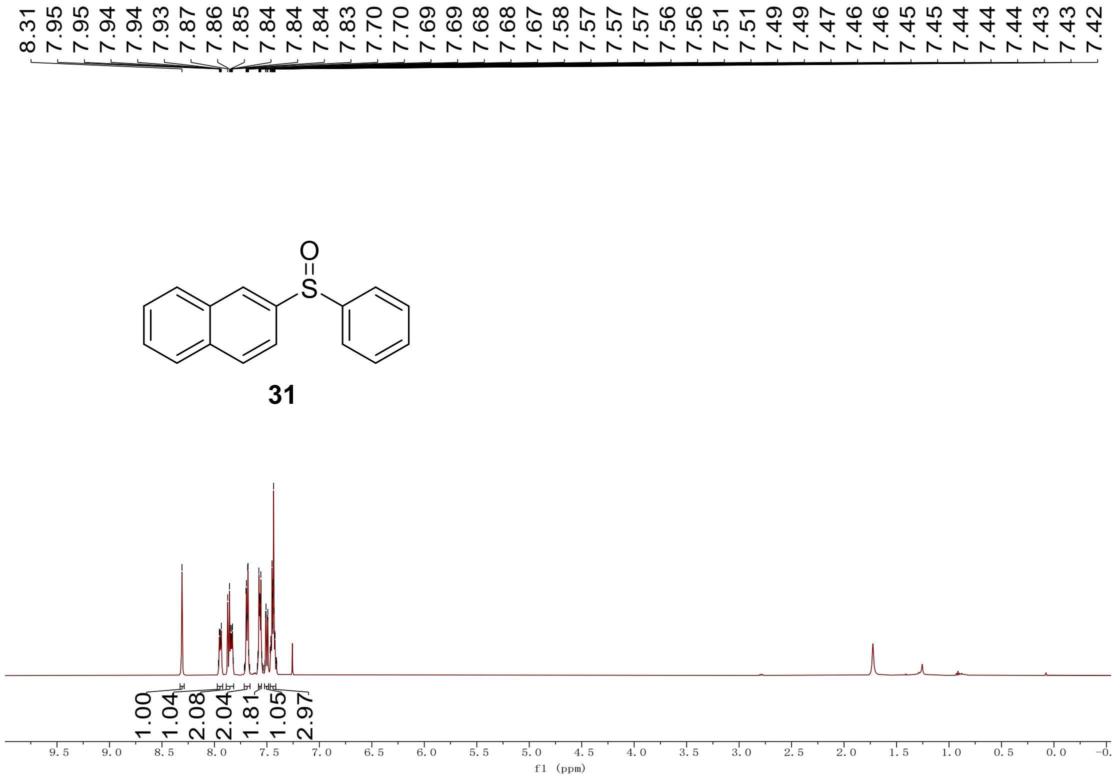
29

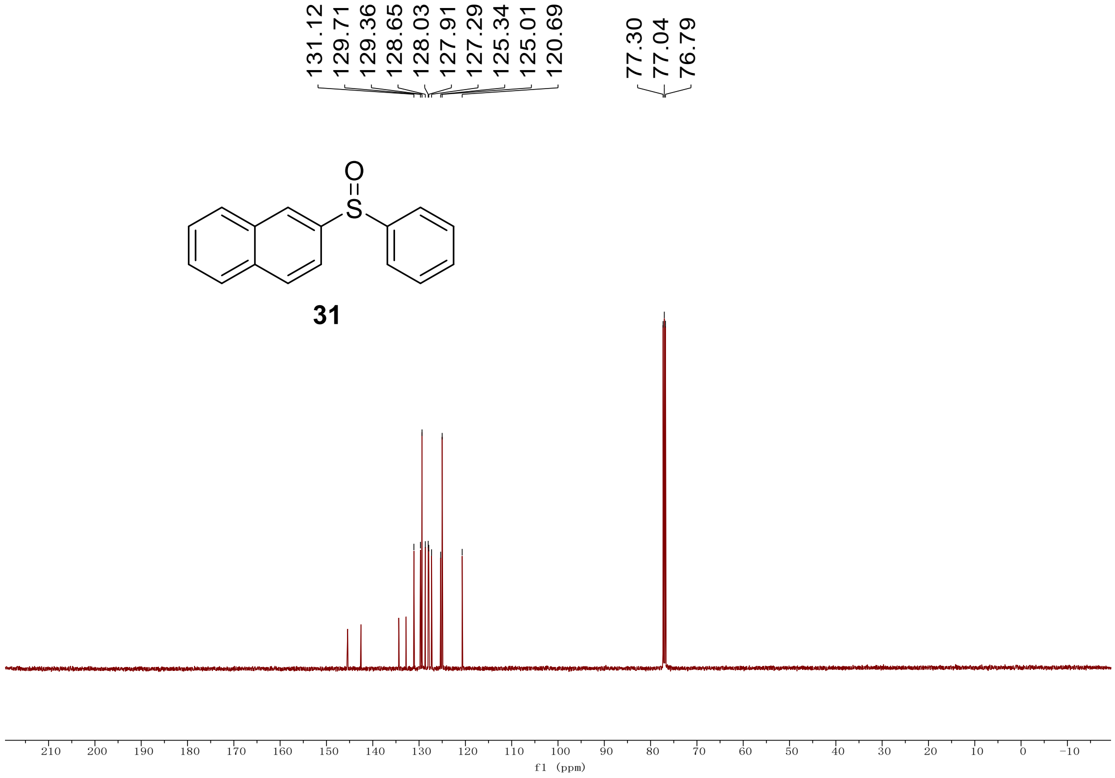

7.81
7.79
7.75
7.73
O
S
F3C
CF3
4.00
4.05
.1
8.0
7.9
7.8
7.7
7.6
7.5
7.4
7.3
7.2
7.1
7.0
6.9
6.8
6.7
6.6
6.5
6.4
6.3
6.2
6.1
6.0
f1 (ppm)

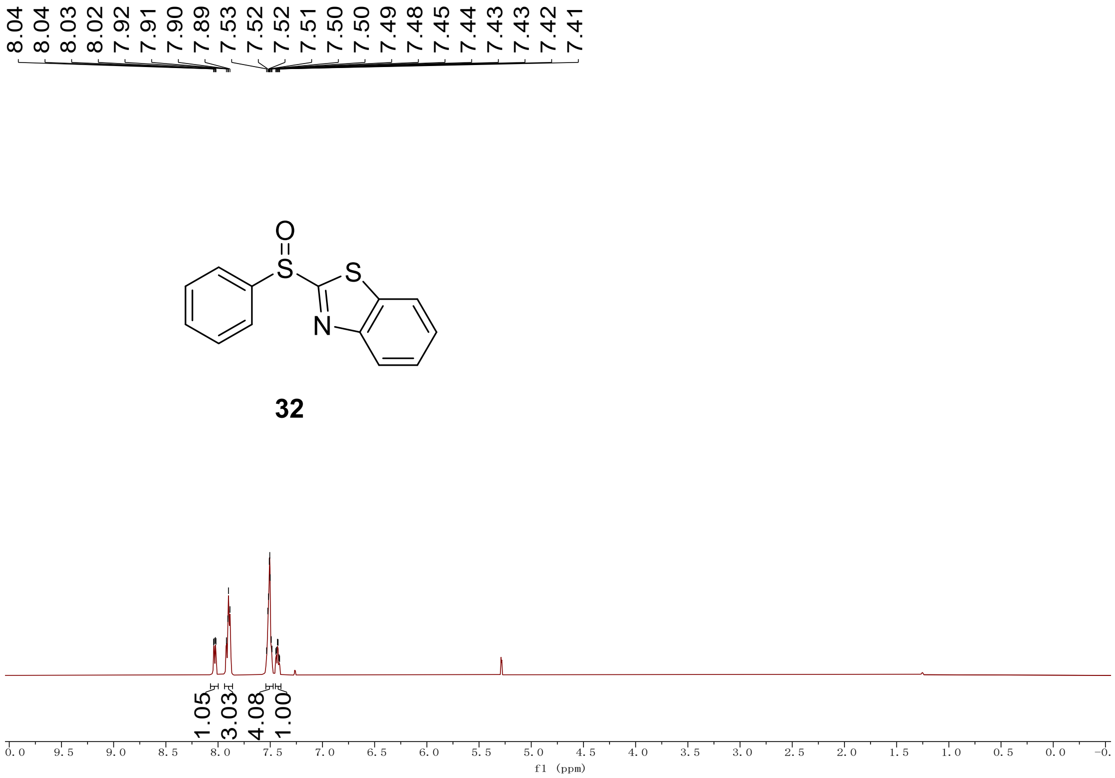
30


149.18
133.61
133.35
126.66
126.63
124.90
124.39
122.22
120.05
O
S
F3C
CF3
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

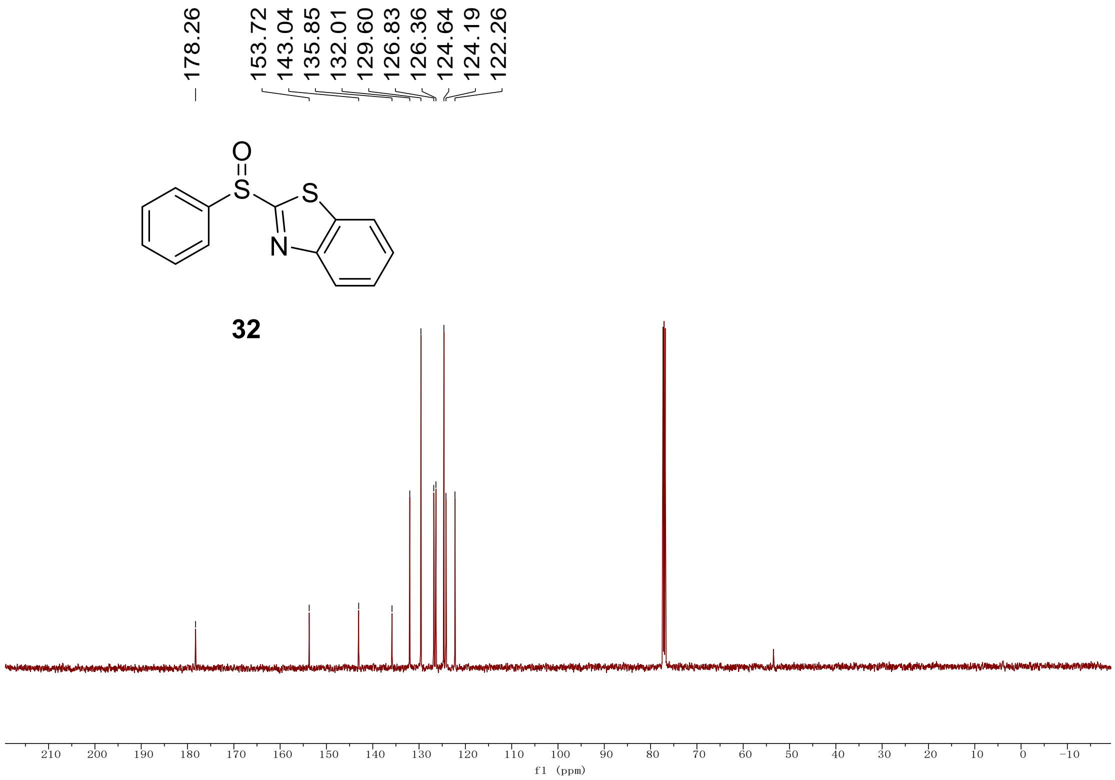
30


8.31
7.95
7.95
7.94
7.94
7.93
7.87
7.86
7.85
7.84
7.84
7.84
7.83
7.70
7.70
7.69
7.69
7.68
7.68
7.67
7.58
7.57
7.57
7.57
7.56
7.56
7.51
7.51
7.49
7.49
7.47
7.46
7.46
7.45
7.45
7.44
7.44
7.44
7.43
7.43
7.42
O
S
31
1.00
1.04
2.08
2.04
1.81
1.05
2.97
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)

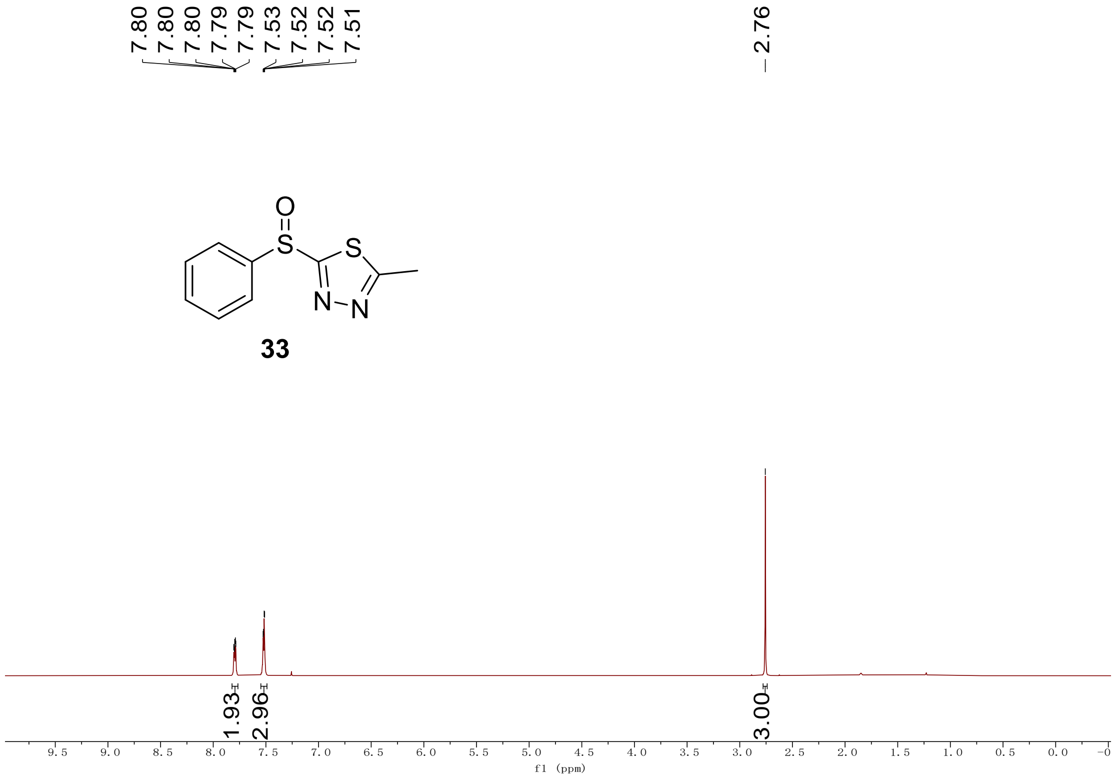

131.12
129.71
129.36
128.65
128.03
127.91
127.29
125.34
125.01
120.69
77.30
77.04
76.79
O
S
31
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

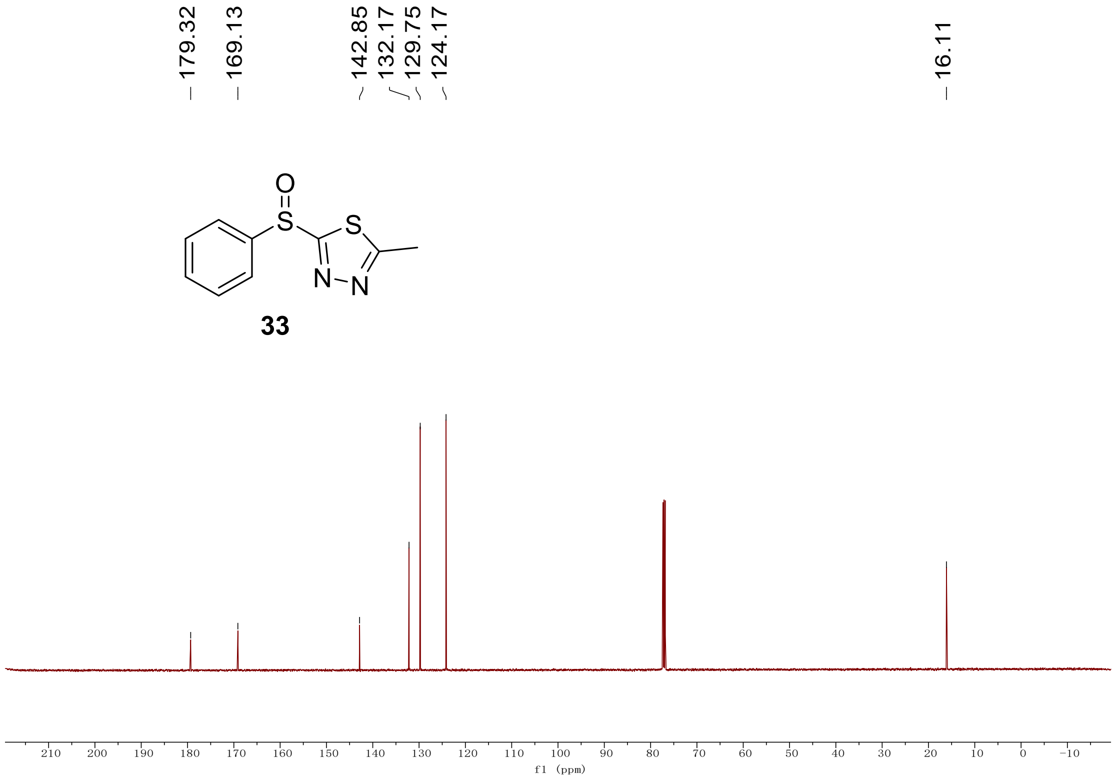

8.04
8.04
8.03
8.02
7.92
7.91
7.90
7.89
7.53
7.52
7.52
7.51
7.50
7.50
7.49
7.48
7.45
7.44
7.43
7.43
7.42
7.41
O
S
S
N
1.05
3.03
4.08
1.00
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)

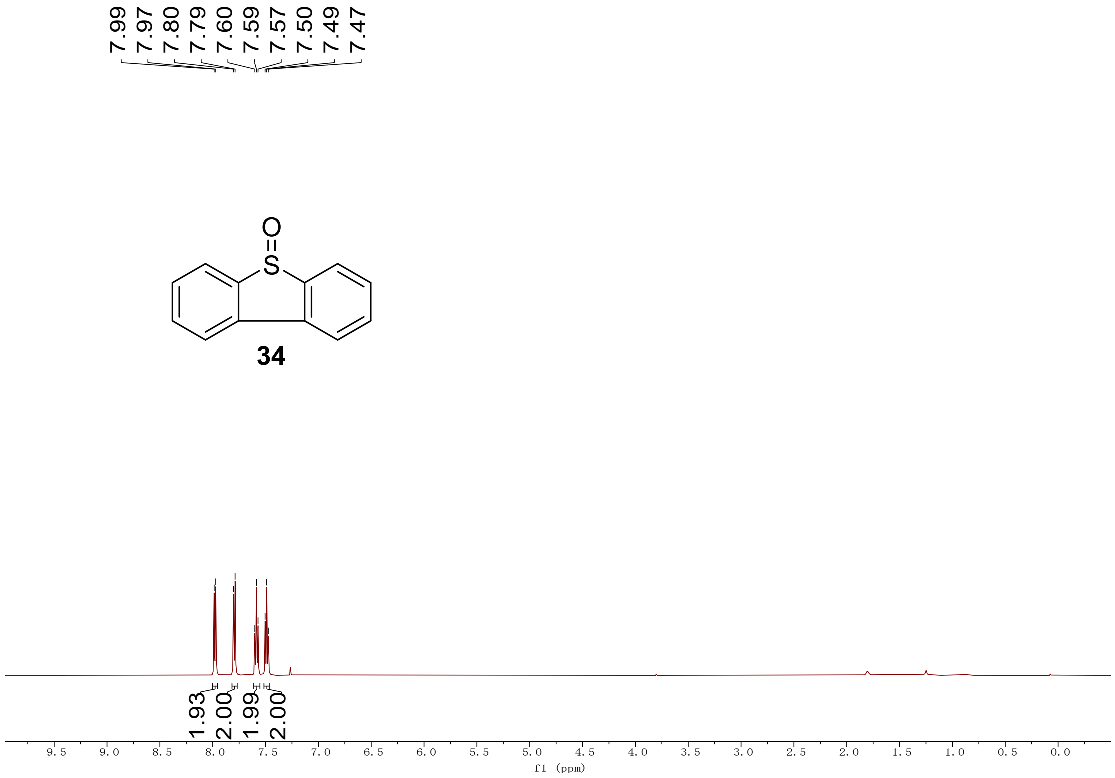
32

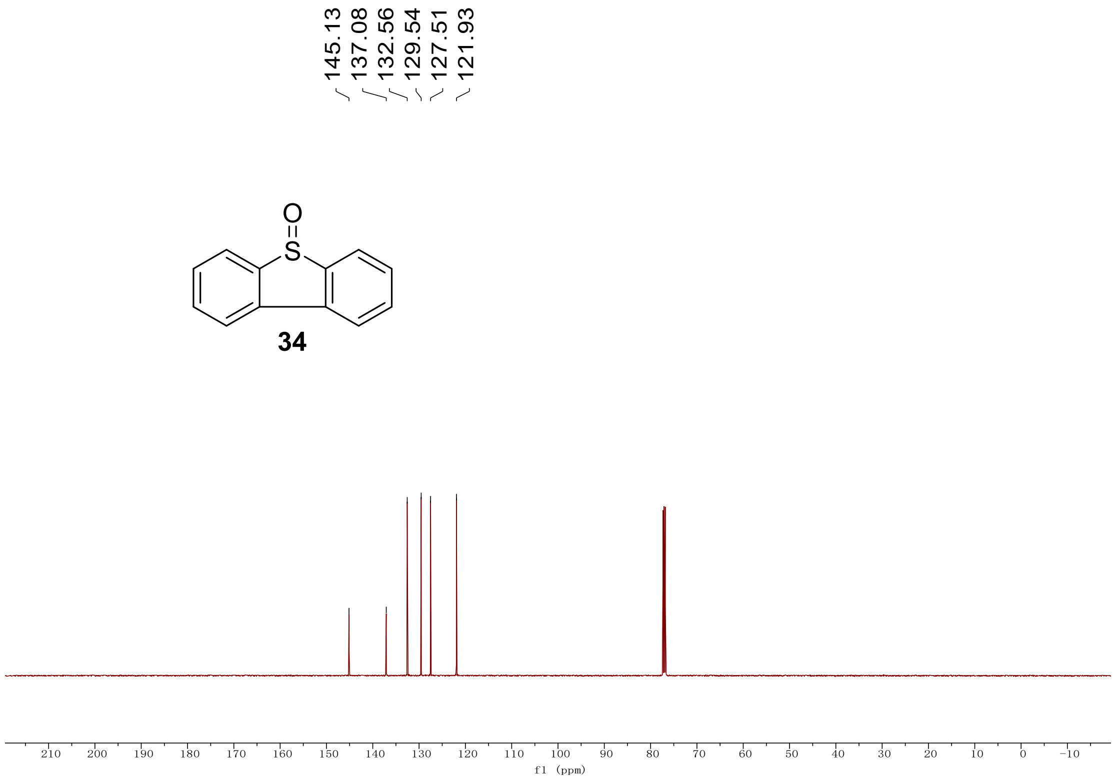

178.26
153.72
143.04
135.85
132.01
129.60
126.83
126.36
124.64
124.19
122.26
O
S
S
N
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

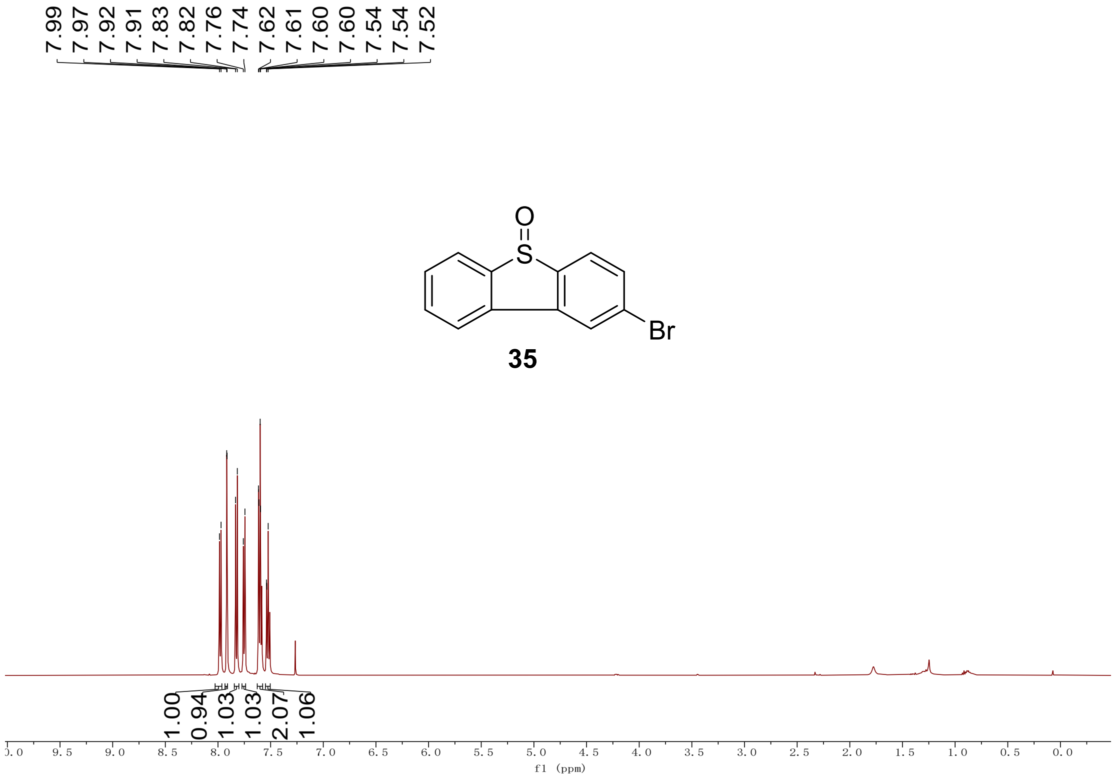
32

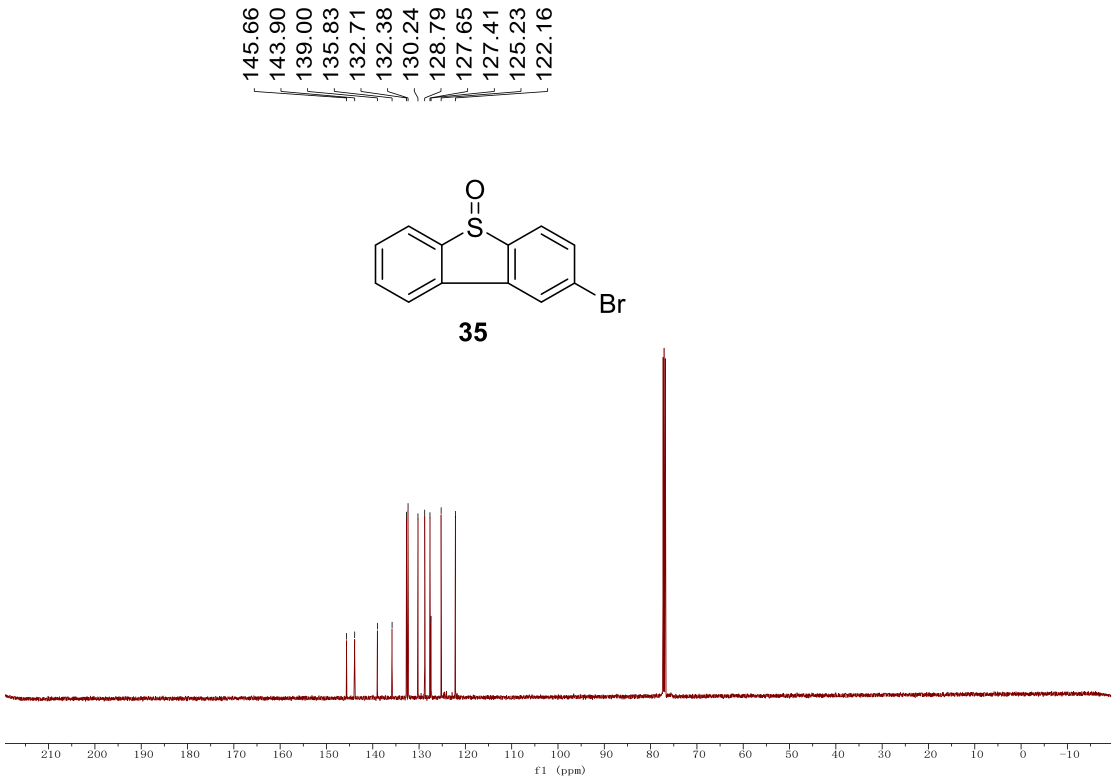

7.80
7.80
7.80
7.79
7.79
7.53
7.52
7.52
7.51
2.76
O
S
S
N
N
33
1.93
2.96
3.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0
f1 (ppm)

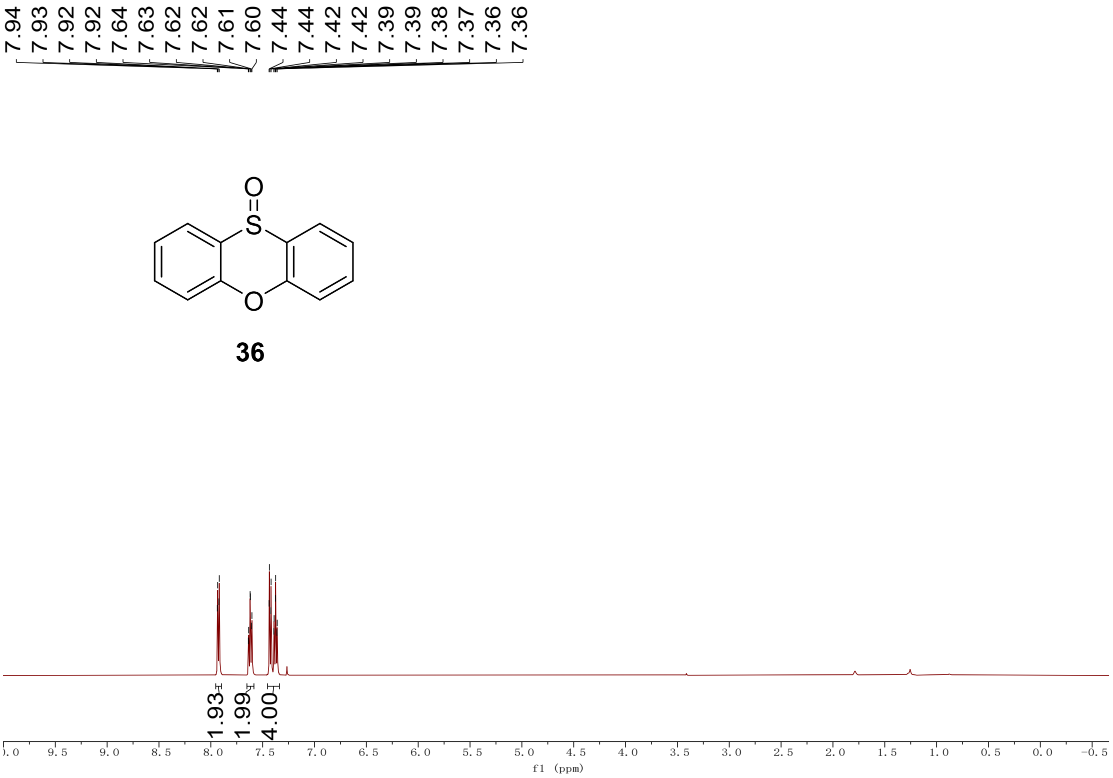

179.32
169.13
142.85
132.17
129.75
124.17
16.11
O
S
S
N
N
33
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
−10
f1 (ppm)


7.99
7.97
7.80
7.79
7.60
7.59
7.57
7.50
7.49
7.47
O
S
34
1.93
2.00
1.99
2.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


145.13
137.08
132.56
129.54
127.51
121.93
O
S
34
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)


7.99
7.97
7.92
7.91
7.83
7.82
7.76
7.74
7.62
7.61
7.60
7.60
7.54
7.54
7.52
O
S
Br
35
1.00
0.94
1.03
1.03
2.07
1.06
.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


145.66
143.90
139.00
135.83
132.71
132.38
130.24
128.79
127.65
127.41
125.23
122.16
O
S
Br
35
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)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7.93
7.92
7.92
7.64
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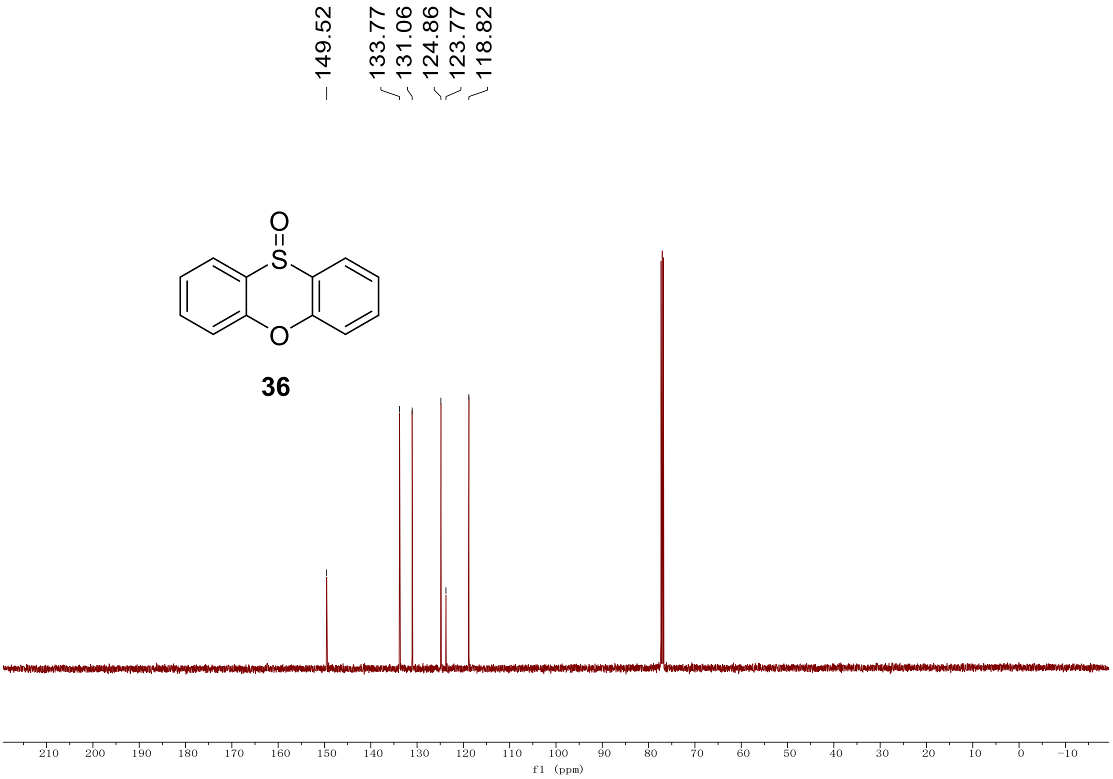
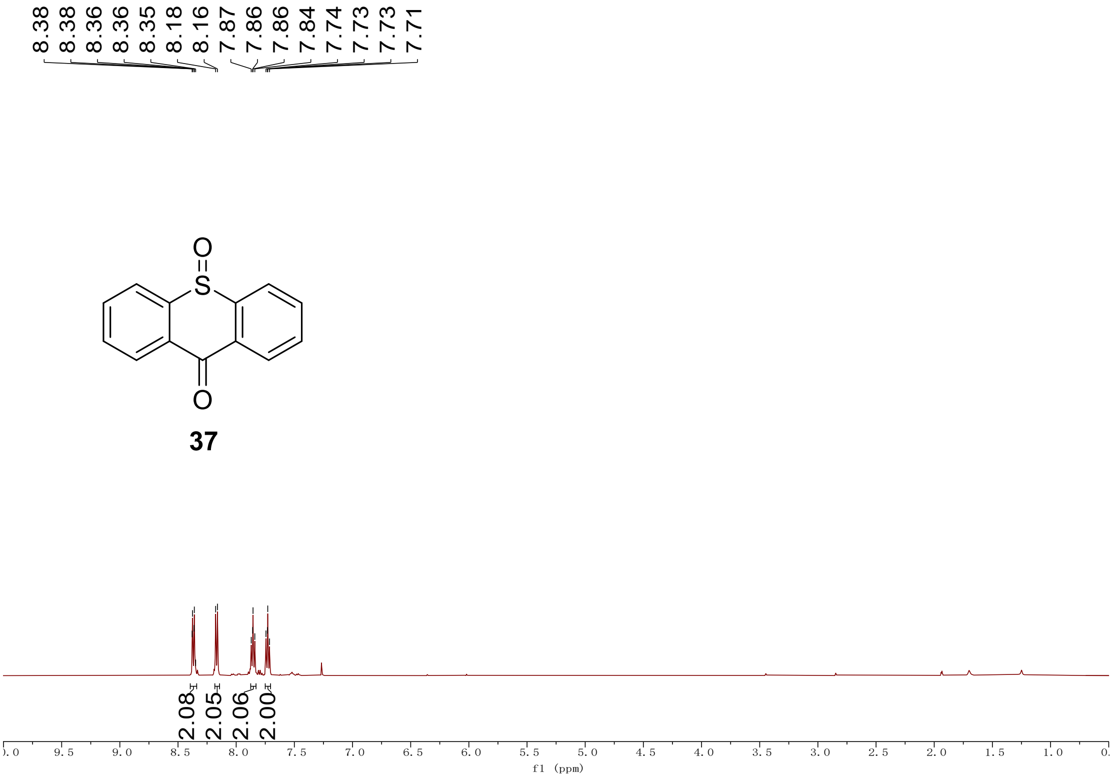
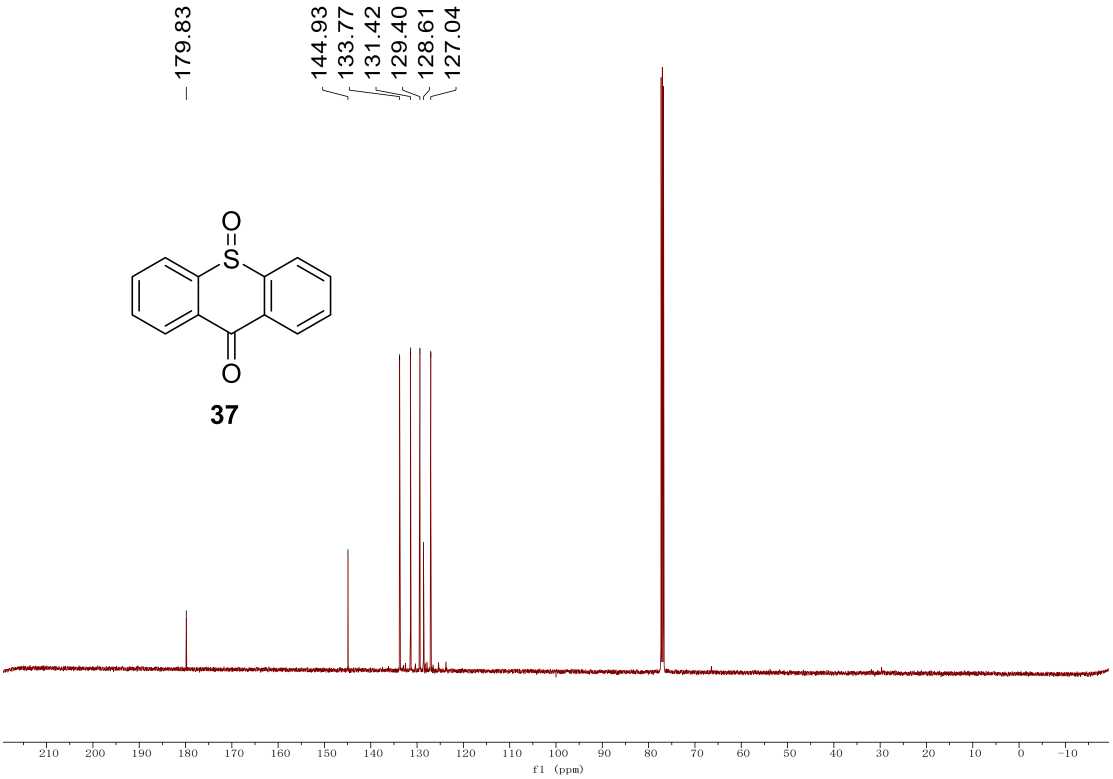
7.62
7.62
7.61
7.60
7.44
7.44
7.42
7.42
7.39
7.39
7.38
7.37
7.36
7.36
O
S
O
36
1.93
1.99
4.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
f1 (ppm)


149.52
133.77
131.06
124.86
123.77
118.82
O
S
O
36
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)



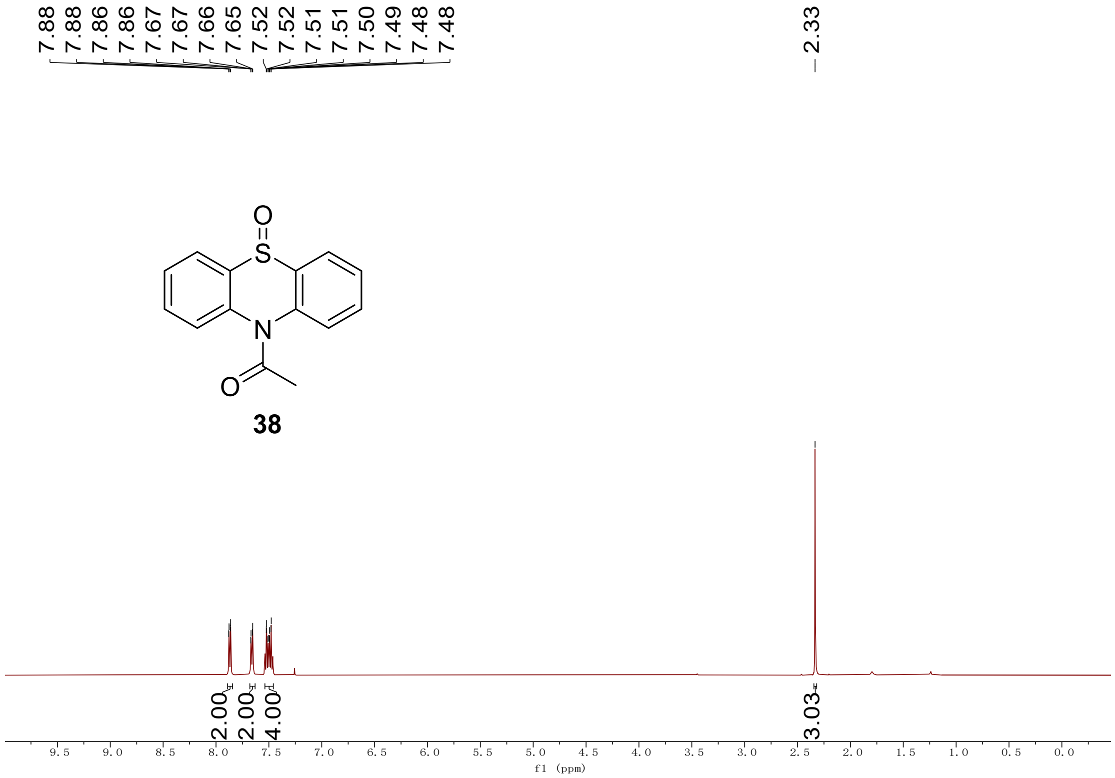
37

8.38
8.38
8.36
8.36
8.35
8.18
8.16
7.87
7.86
7.86
7.84
7.74
7.73
7.73
7.71
2.08
2.05
2.06
2.00
O
S
O
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
f1 (ppm)



37

179.83
144.93
133.77
131.42
129.40
128.61
127.04
O
S
O
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)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7.88
7.86
7.86
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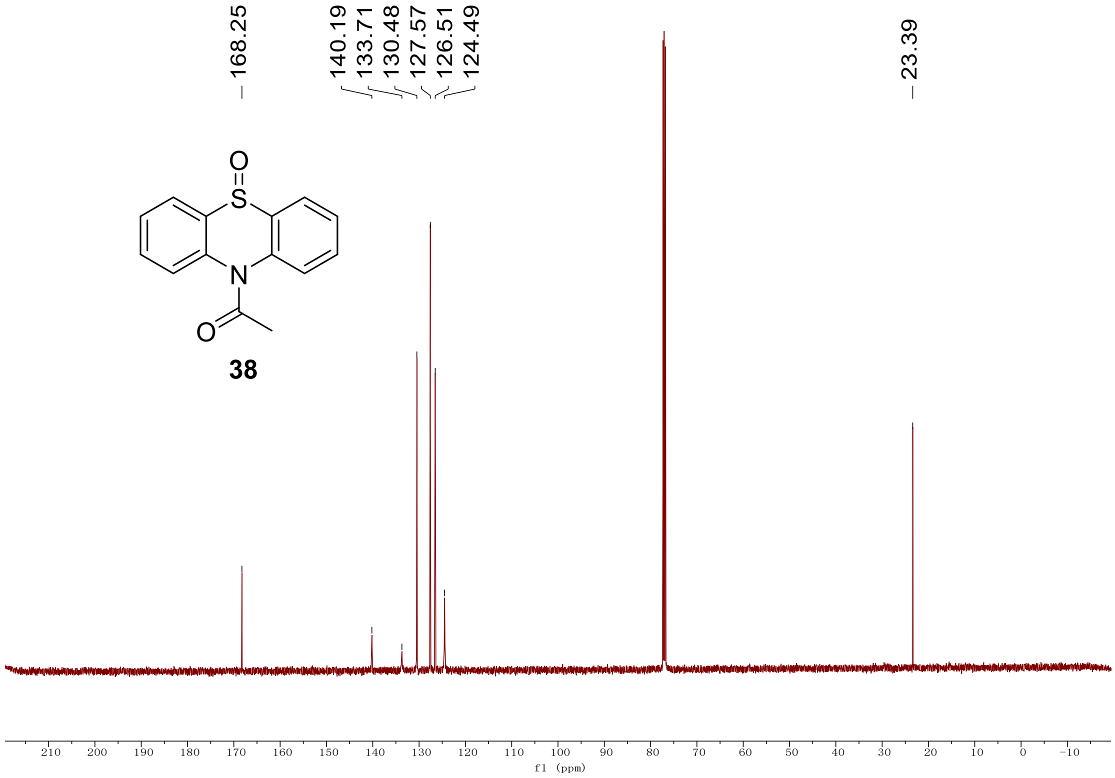
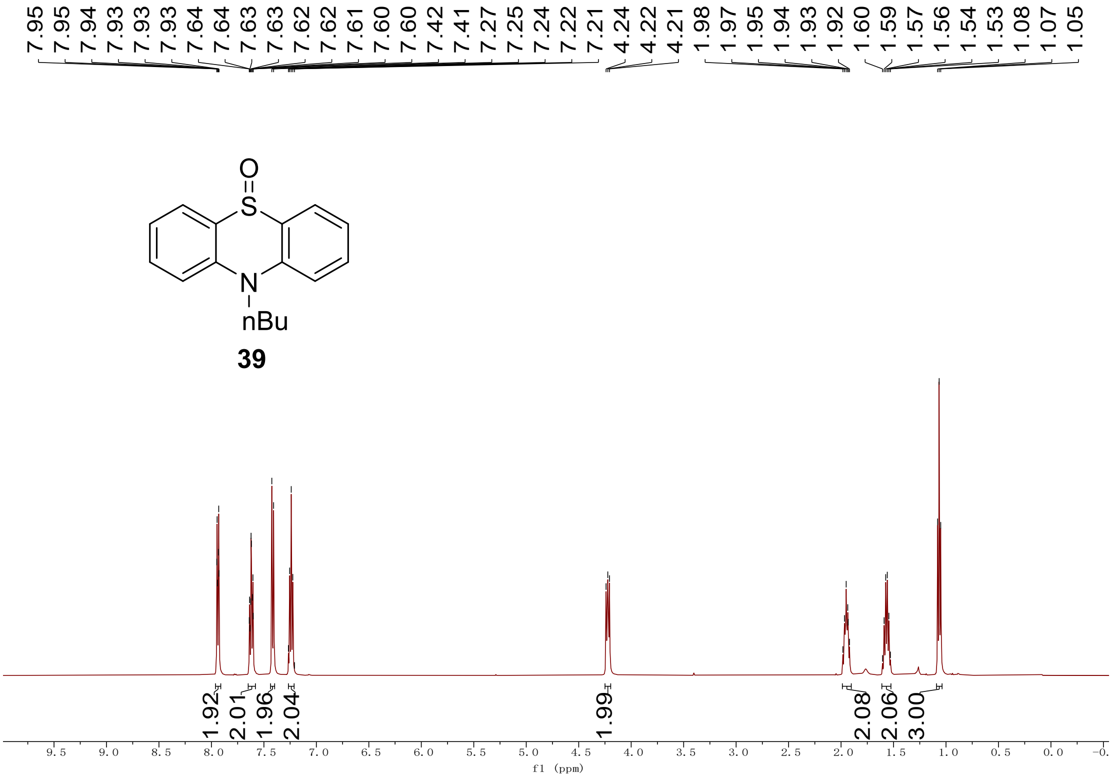
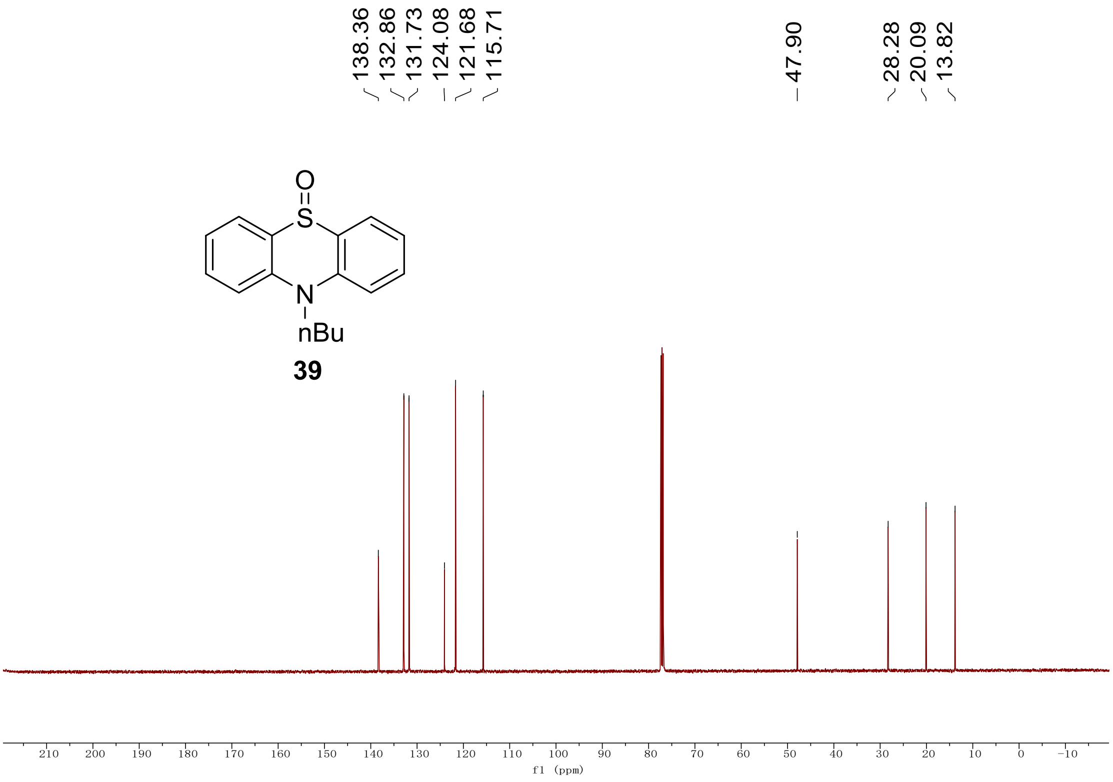
7.67
7.66
7.65
7.52
7.52
7.51
7.51
7.50
7.49
7.48
7.48
2.33
O
S
N
O
2.00
2.00
4.00
3.03
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

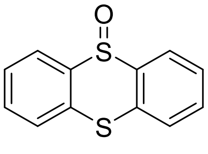
38


168.25
140.19
133.71
130.48
127.57
126.51
124.49
23.39
O
S
N
O
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

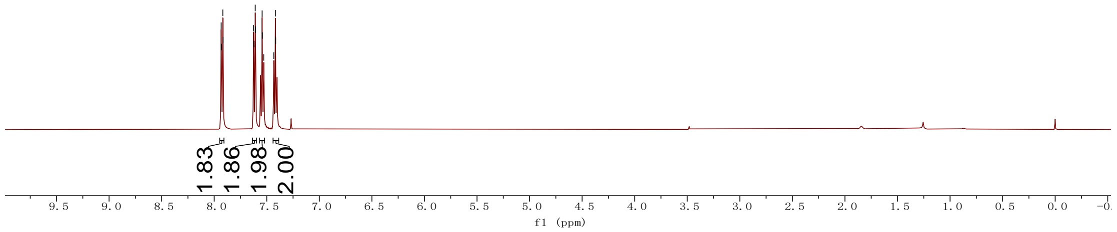
38

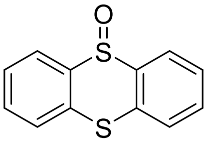

7.95
7.95
7.94
7.93
7.93
7.93
7.64
7.64
7.63
7.63
7.62
7.62
7.61
7.60
7.60
7.42
7.41
7.27
7.25
7.24
7.22
7.21
4.24
4.22
4.21
1.98
1.97
1.95
1.94
1.93
1.92
1.60
1.59
1.57
1.56
1.54
1.53
1.08
1.07
1.05
O
S
N
nBu
39
1.92
2.01
1.96
2.04
1.99
2.08
2.06
3.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)


138.36
132.86
131.73
124.08
121.68
115.71
47.90
28.28
20.09
13.82
O
S
N
nBu
39
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)



40


7.93
7.93
7.92
7.92
7.63
7.62
7.61
7.61
7.54
7.54
7.53
7.43
7.42
7.41
1.83
1.86
1.98
2.00
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)



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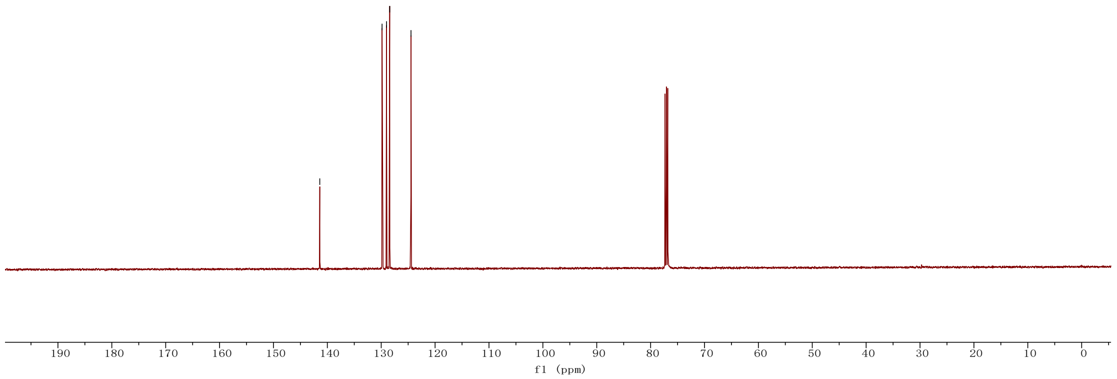
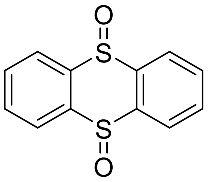
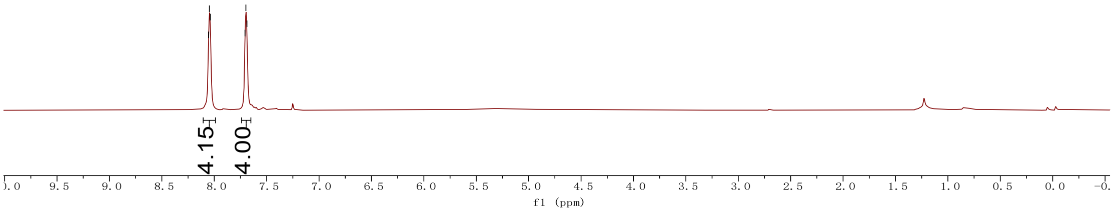
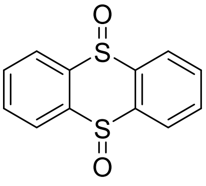

141.40
129.84
129.01
128.42
124.47
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

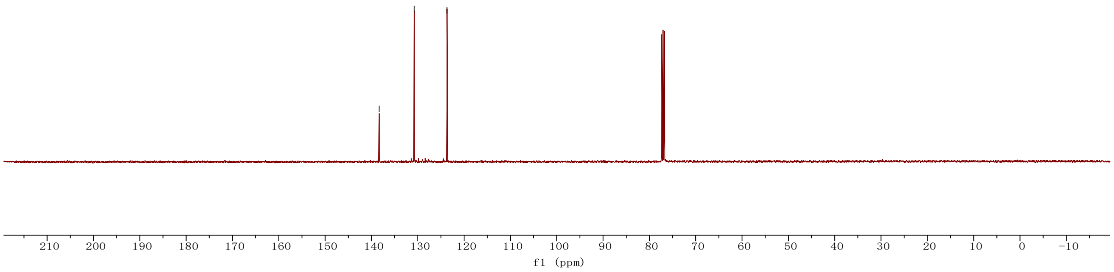


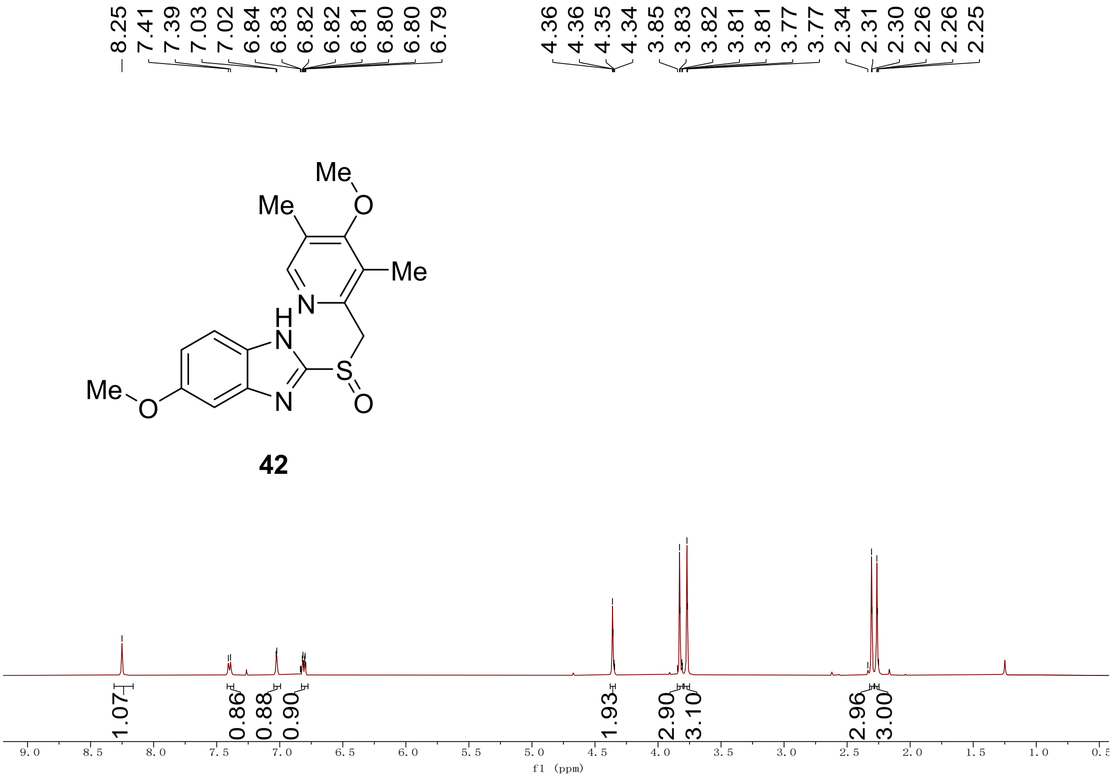
41

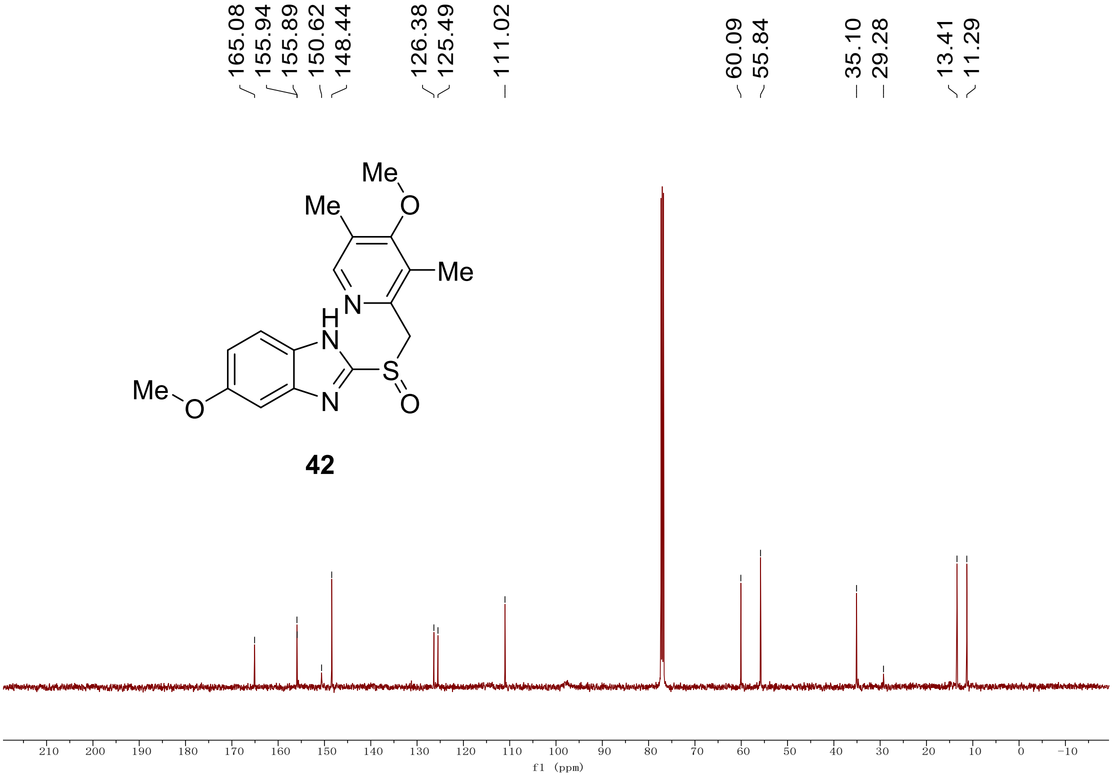

8.05
8.05
8.04
7.71
7.70
7.69
4.15
4.00
).0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.
f1 (ppm)

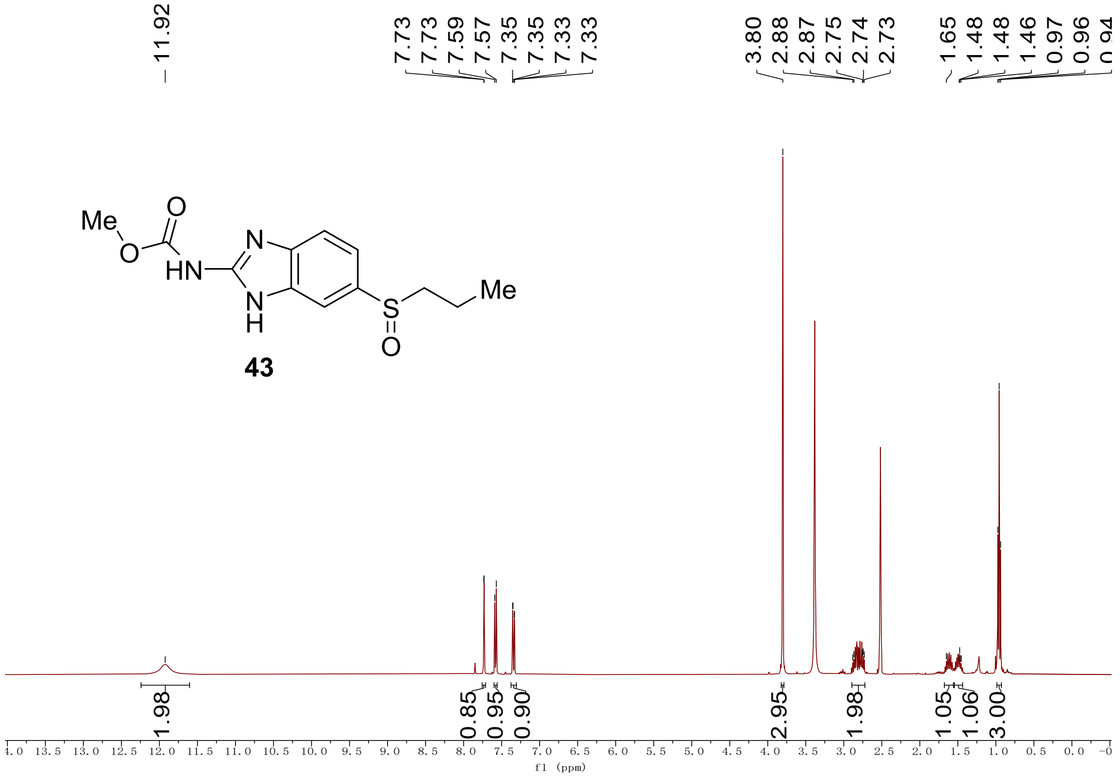


41

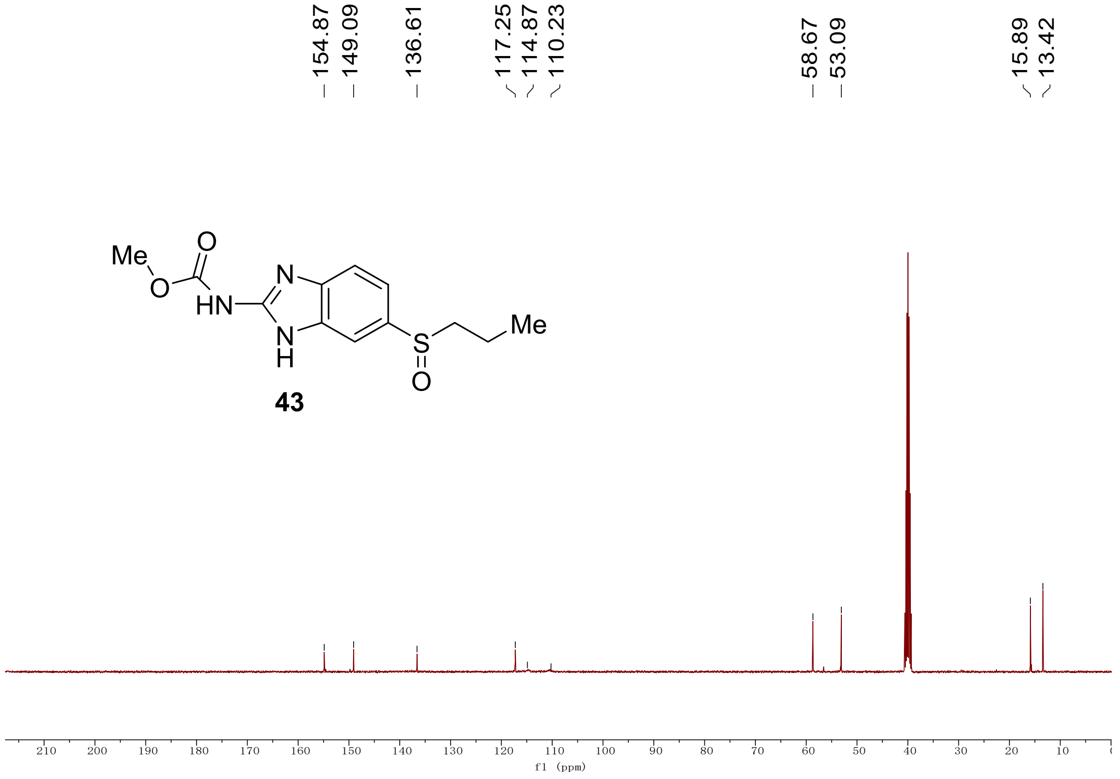

138.35
130.79
123.70
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)


8.25
7.41
7.39
7.03
7.02
6.84
6.83
6.82
6.82
6.81
6.80
6.80
6.79
4.36
4.36
4.35
4.34
3.85
3.83
3.82
3.81
3.81
3.77
3.77
2.34
2.31
2.30
2.26
2.26
2.25
Me
O
Me
Me
N
H
N
S
O
Me
O
N
42
1.07
0.86
0.88
0.90
1.93
2.90
3.10
2.96
3.00
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
f1 (ppm)


165.08
155.94
155.89
150.62
148.44
126.38
125.49
111.02
60.09
55.84
35.10
29.28
13.41
11.29
Me
O
Me
Me
N
H
N
S
O
Me
O
N
42
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)



11.92
7.73
7.73
7.59
7.57
7.35
7.35
7.33
7.33
3.80
2.88
2.87
2.75
2.74
2.73
1.65
1.48
1.48
1.46
0.97
0.96
Me
O
O
N
HN
N
H
S
O
Me
43
1.98
0.85
0.95
0.90
2.95
1.98
1.05
1.06
3.00
14.0 13.5 13.0 12.5 12.0 11.5 11.0 10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)



154.87
149.09
136.61
117.25
114.87
110.23
58.67
53.09
15.89
13.42
Me
O
O
N
HN
N
H
S
O
Me
43
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10
f1 (ppm)