

Supplementary Data for:

Ru Alkylidene Compounds Bearing Tridentate, Dianionic Ligands: Lewis Acid Activation and Olefin Metathesis

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Figure 1. ^1H NMR Spectrum of **1** in CD_2Cl_2

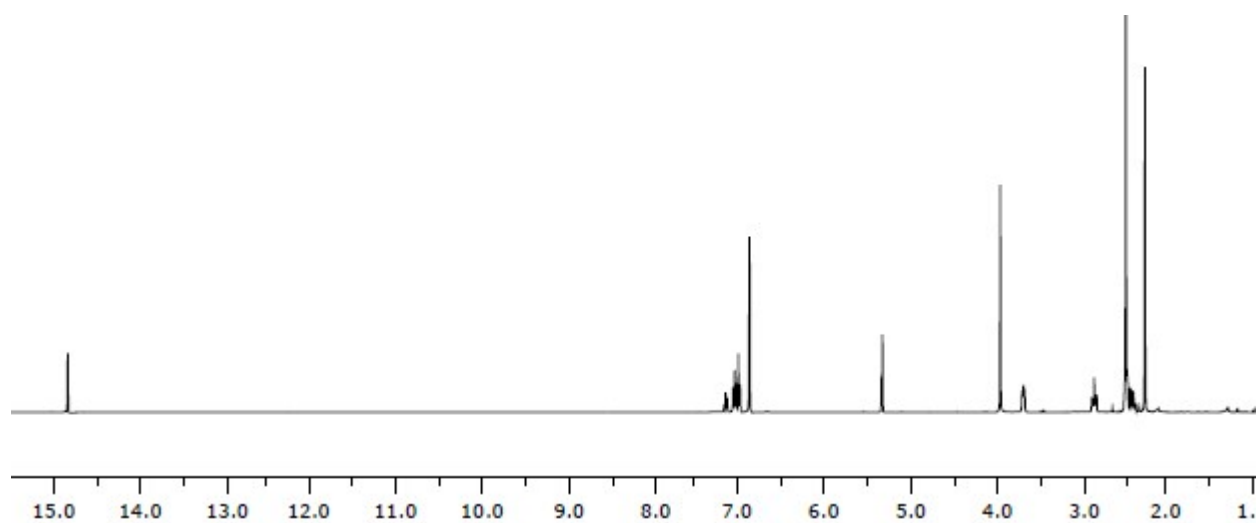


Figure 2. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **1** in CD_2Cl_2

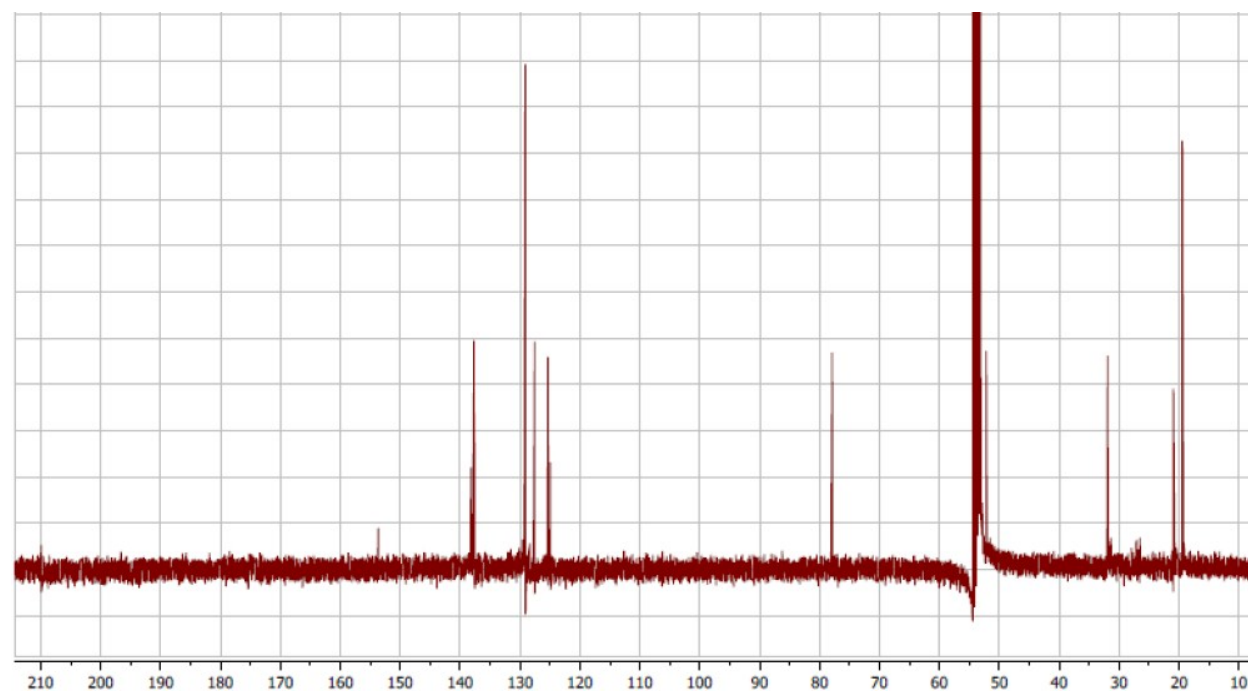


Figure 3. ^1H NMR Spectrum of **2** in CD_2Cl_2

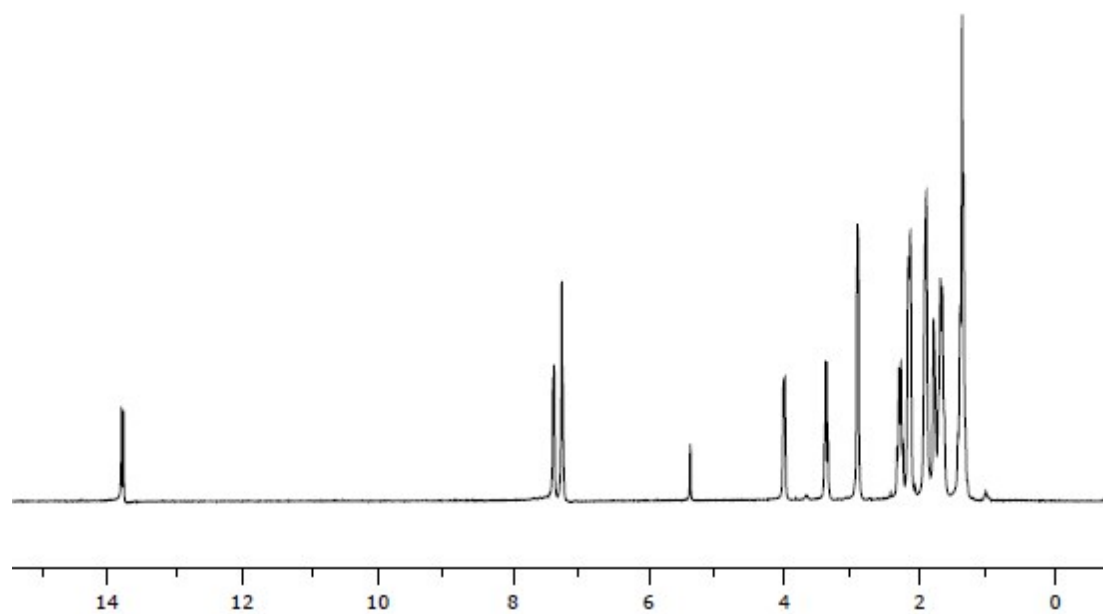


Figure 4. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **2** in CD_2Cl_2

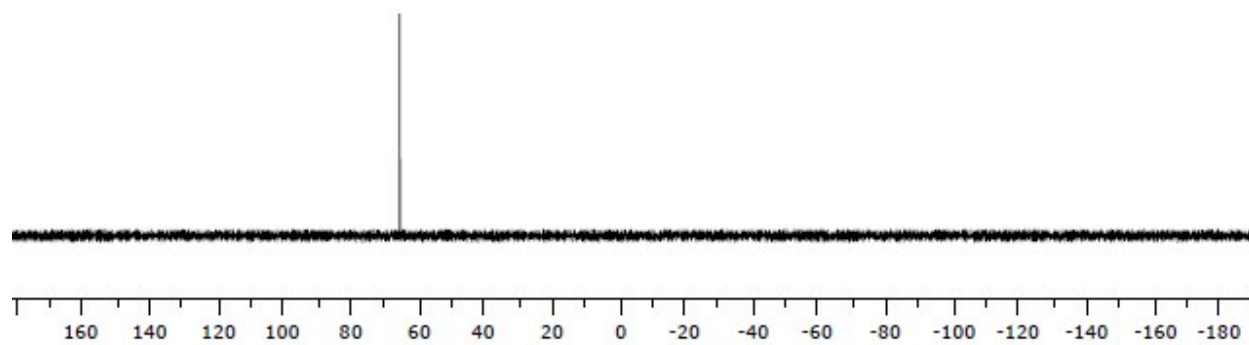


Figure 5. $^{31}\text{C}\{^1\text{H}\}$ NMR Spectrum of **2** in CD_2Cl_2

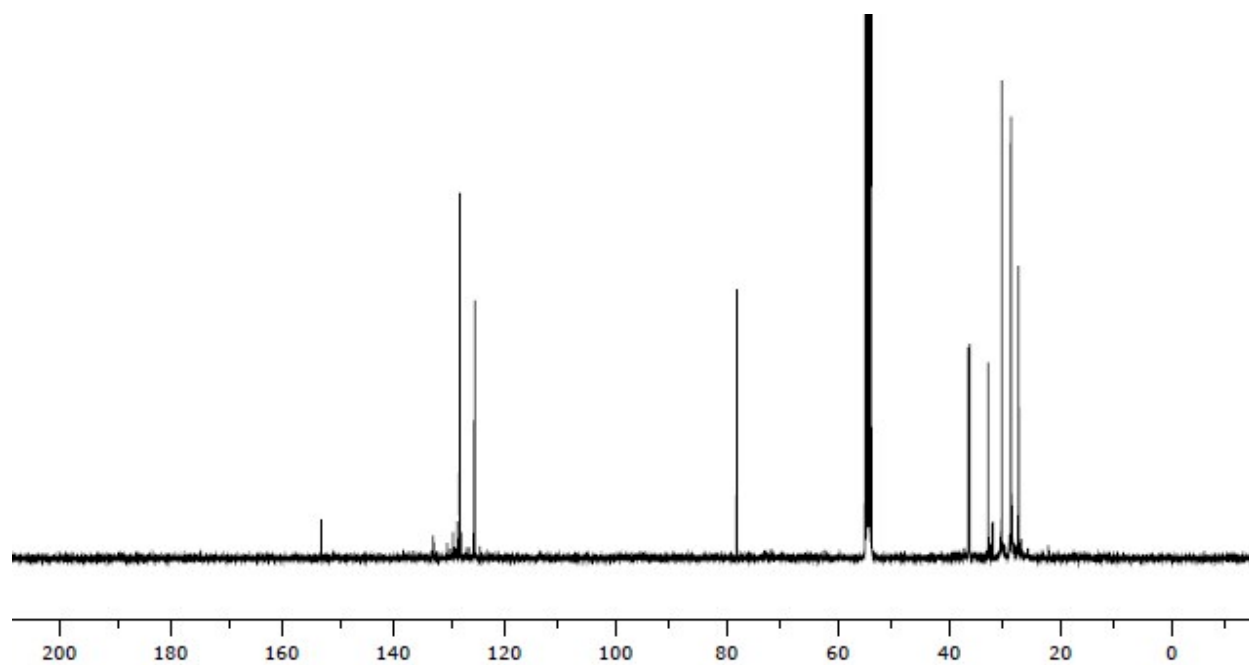


Figure 6. ^1H NMR Spectrum of **3** in CD_2Cl_2

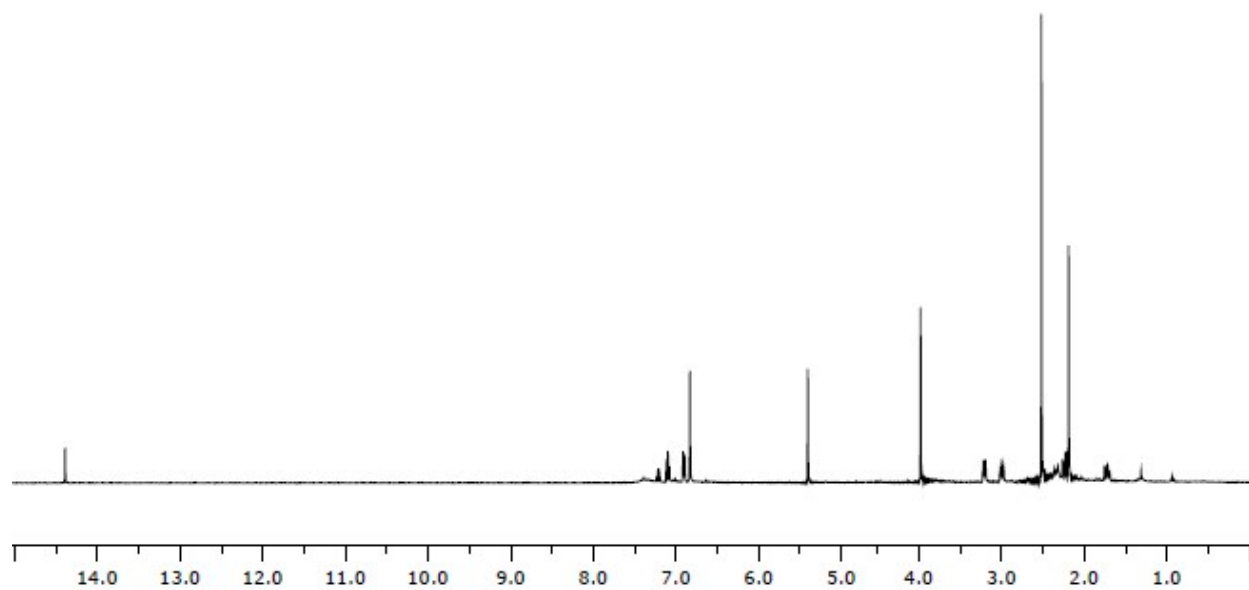


Figure 7. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **3** in CD_2Cl_2

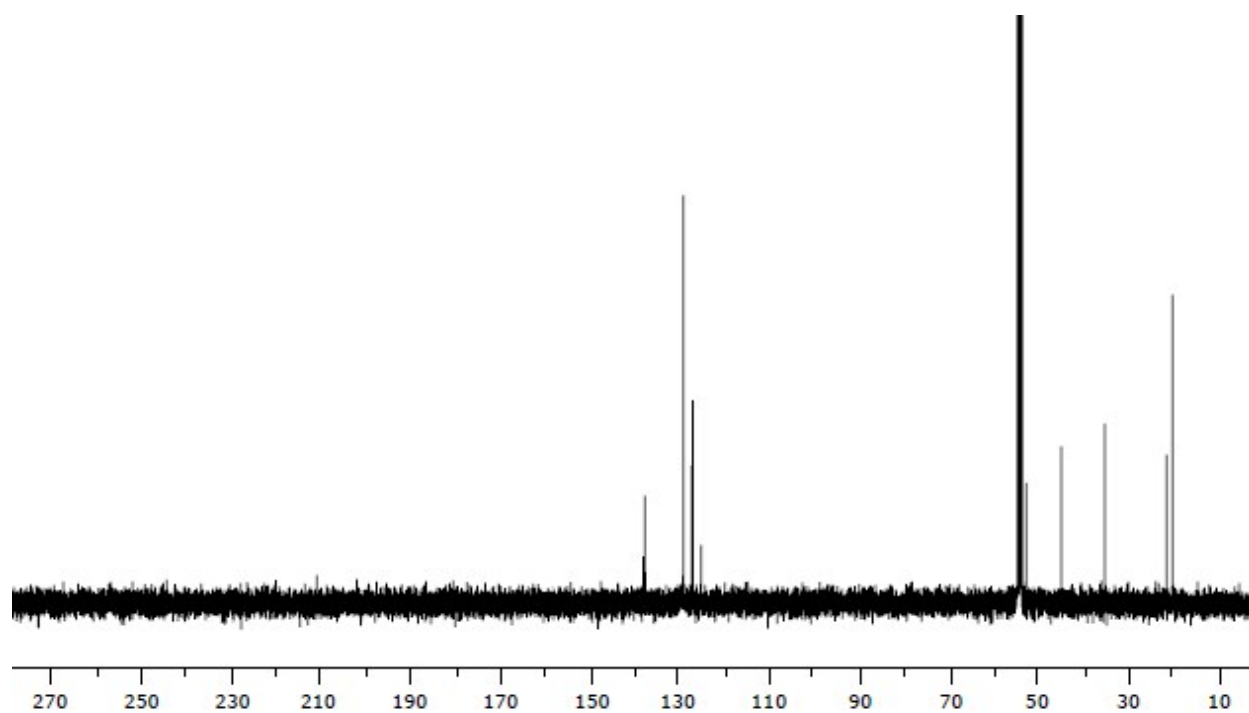


Figure 8. ^1H NMR Spectrum of **4** in CD_2Cl_2

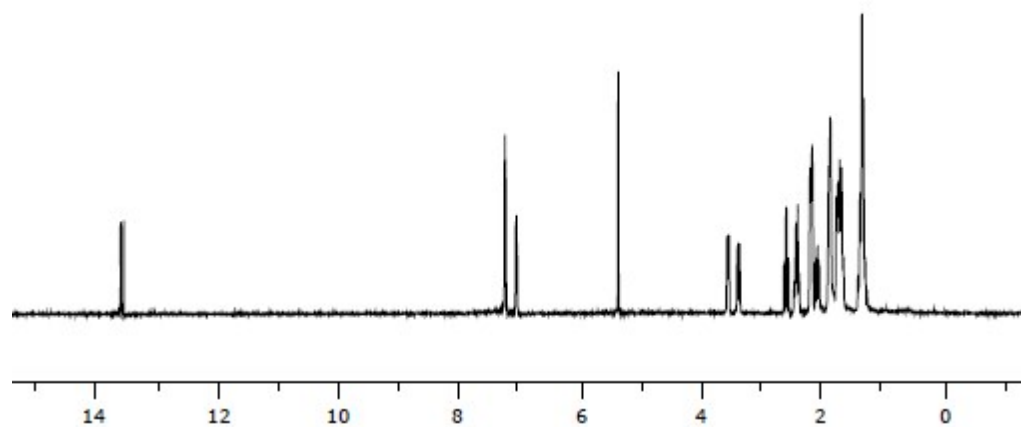


Figure 9. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **4** in CD_2Cl_2

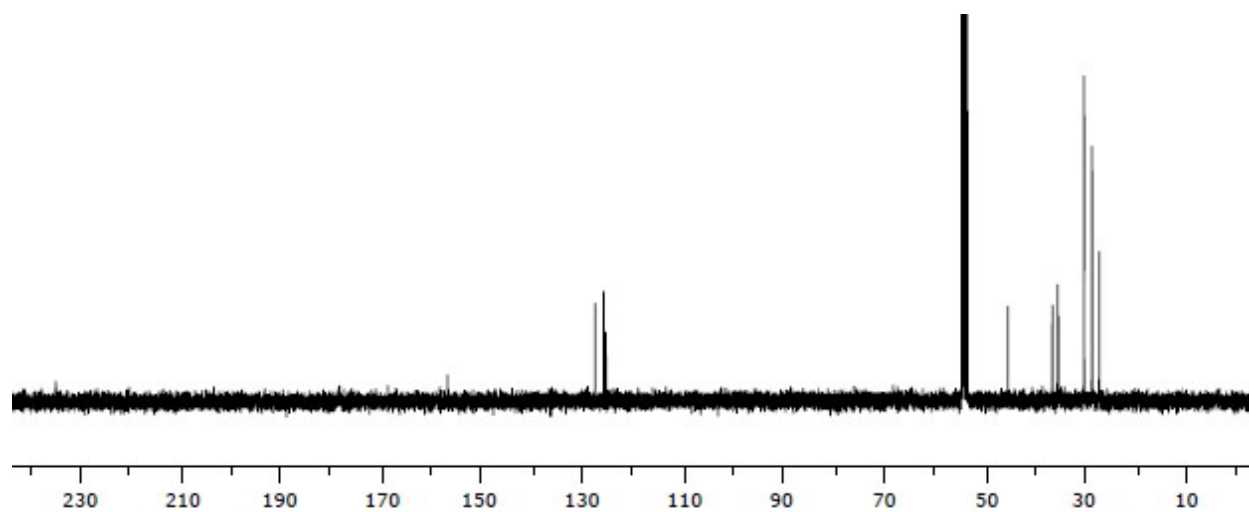


Figure 10. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **4** in CD_2Cl_2

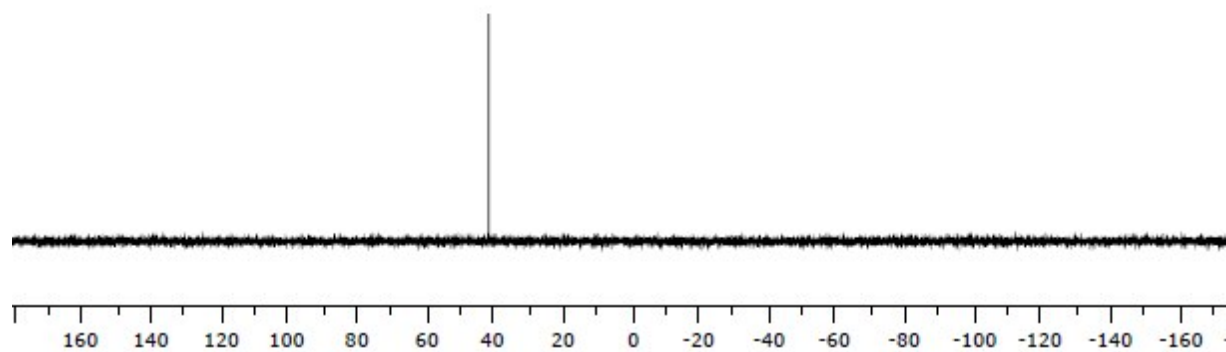


Figure 11. ^1H NMR Spectrum of **5** in CD_2Cl_2

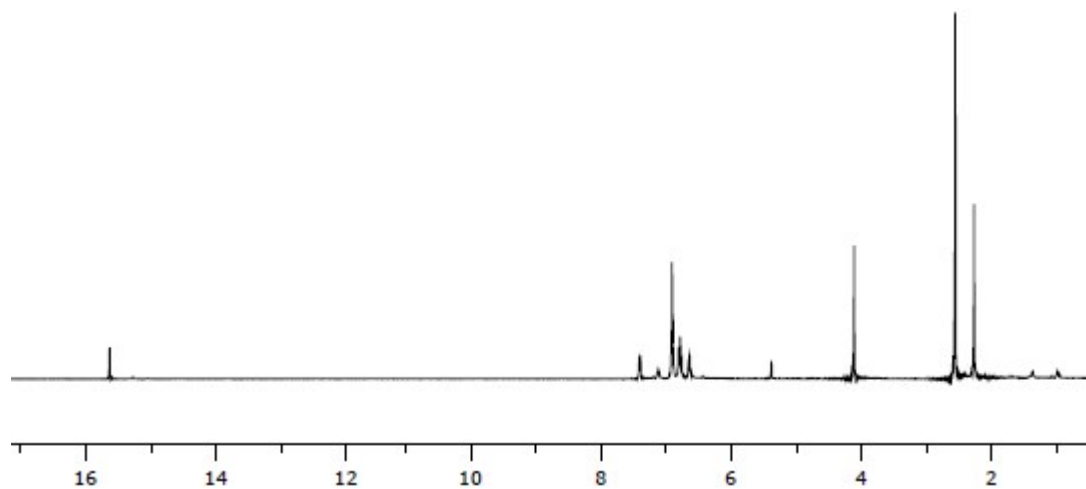


Figure 12. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **5** in CD_2Cl_2

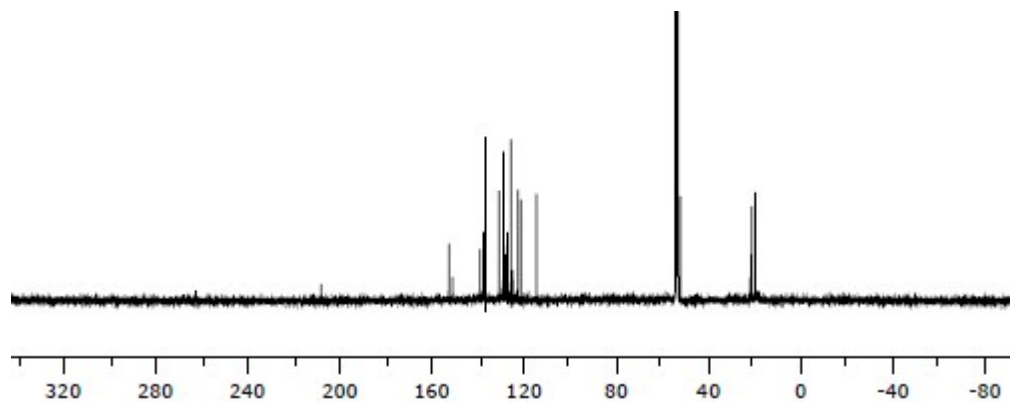


Figure 13. ^1H NMR Spectrum of **6** in CD_2Cl_2

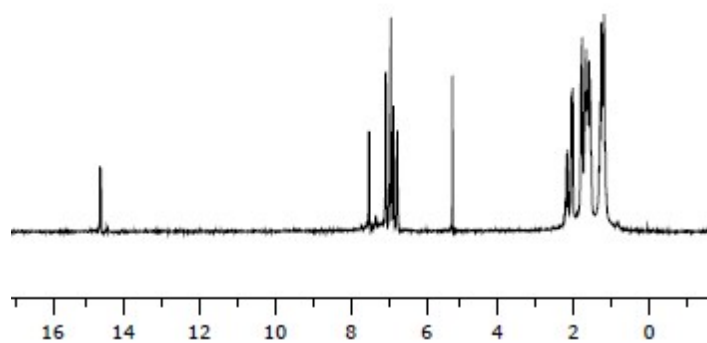


Figure 14. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **6** in CD_2Cl_2

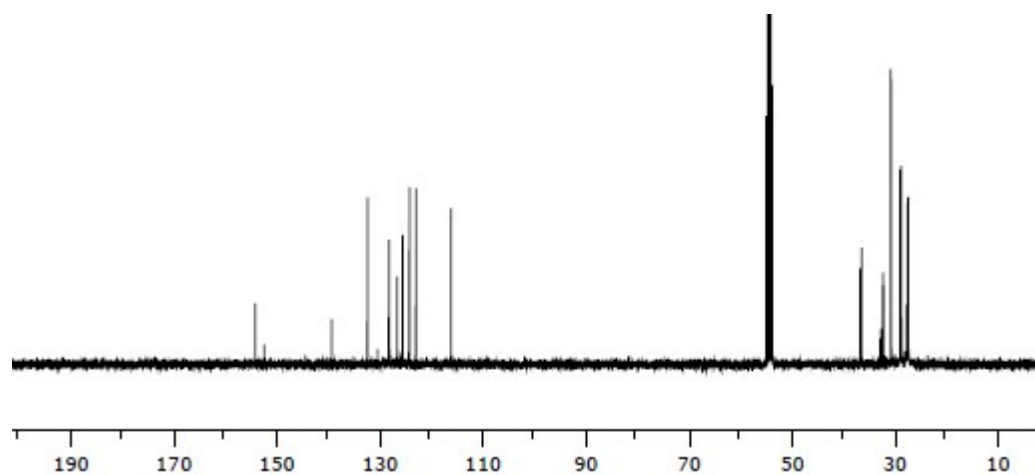


Figure 15. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **6** in CD_2Cl_2

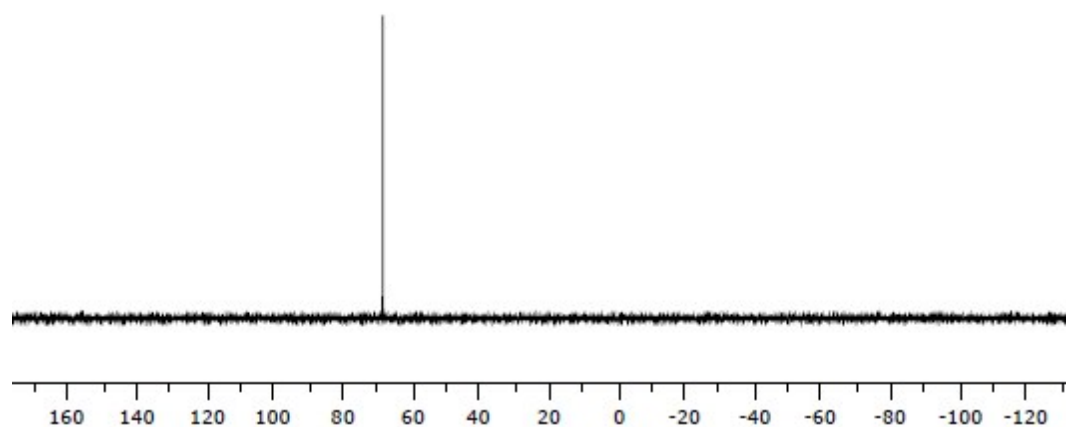


Figure 16. ^1H NMR Spectrum of **7** in CD_2Cl_2

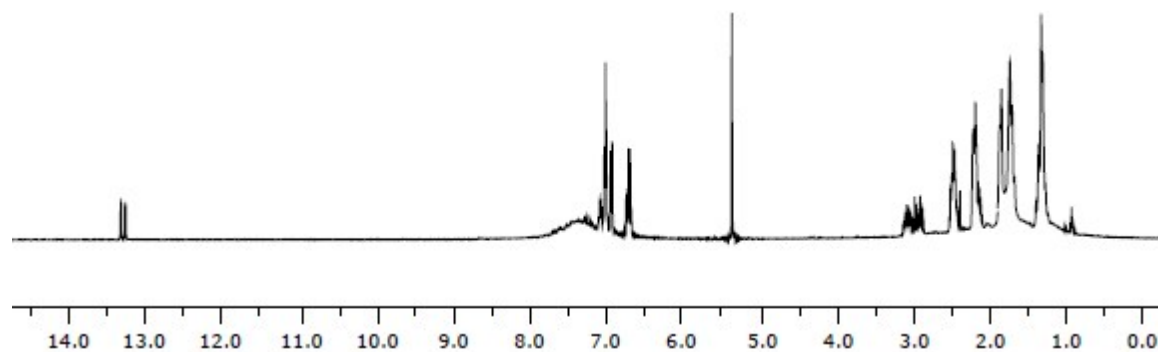


Figure 17. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **7** in CD_2Cl_2

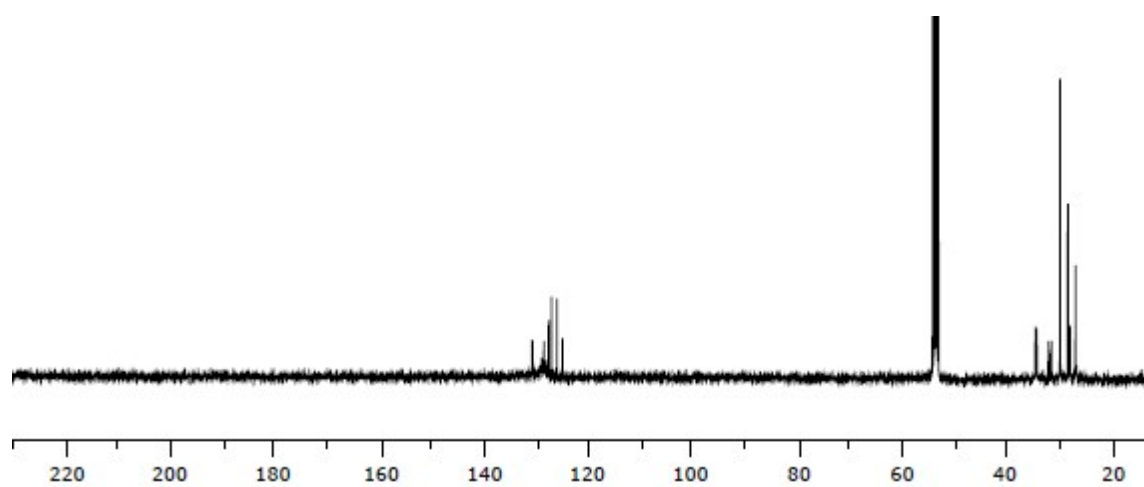


Figure 18. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **7** in CD_2Cl_2

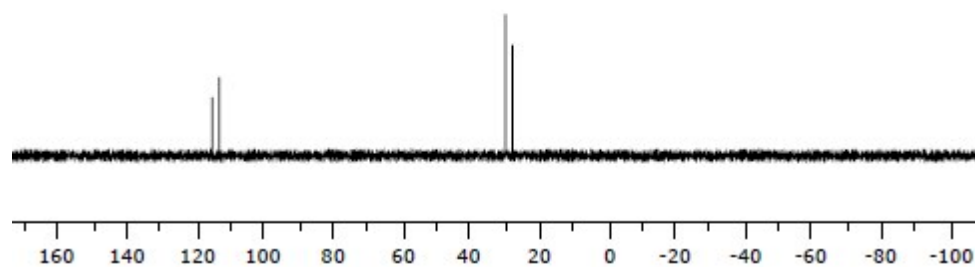


Figure 19. ^1H NMR Spectrum of **8** in CD_2Cl_2

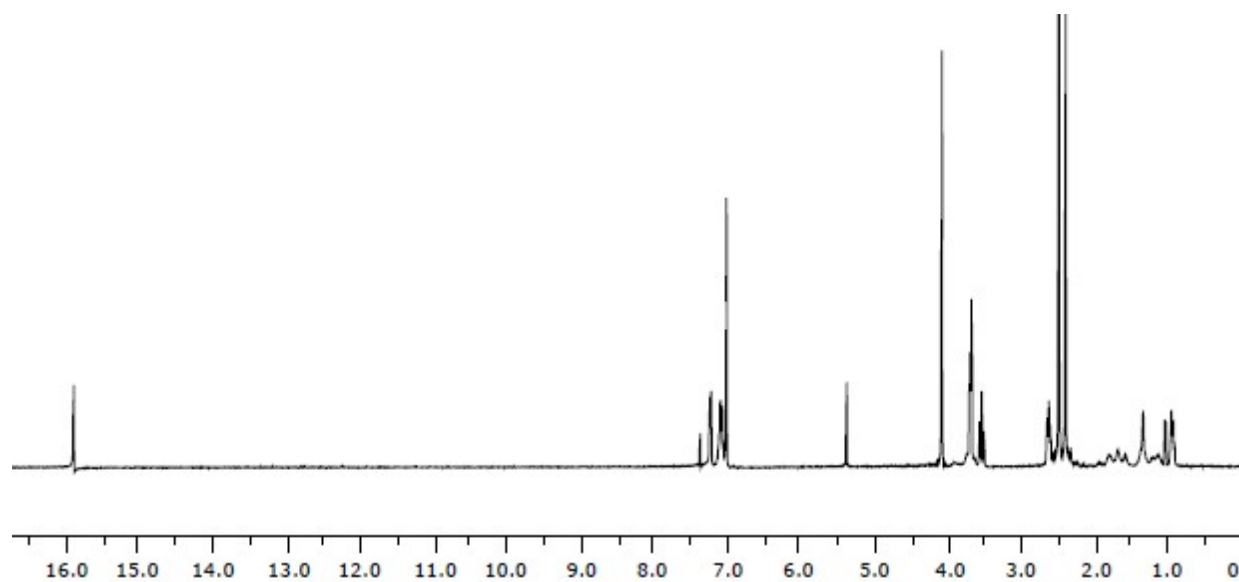


Figure 20. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **8** in CD_2Cl_2

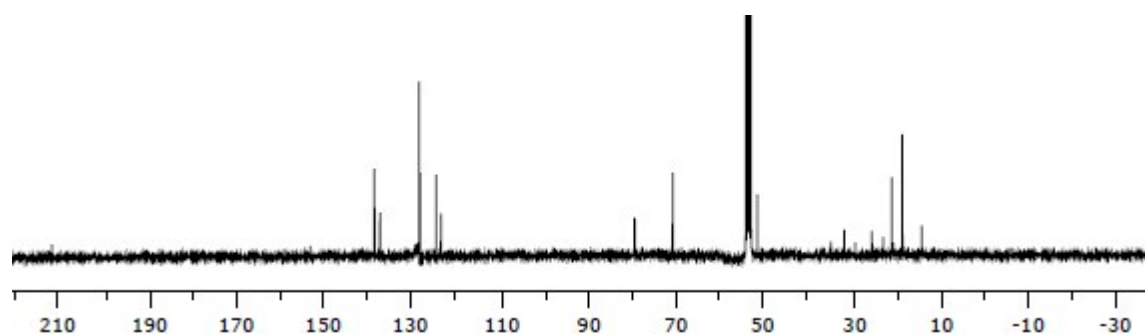


Figure 21. ^1H NMR Spectrum of **9** in CD_2Cl_2

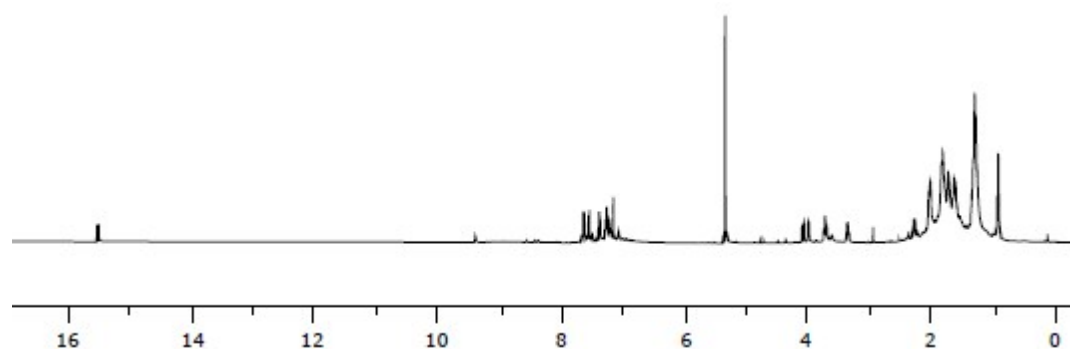


Figure 22. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **9** in CD_2Cl_2

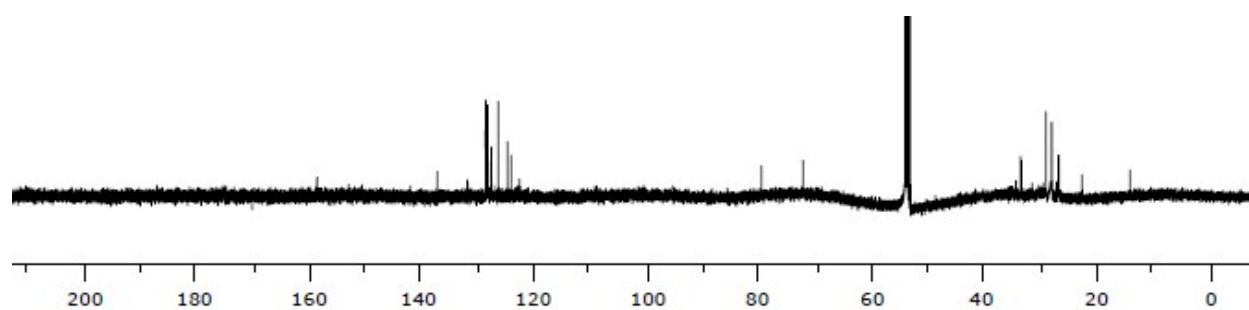


Figure 23. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **9** in CD_2Cl_2

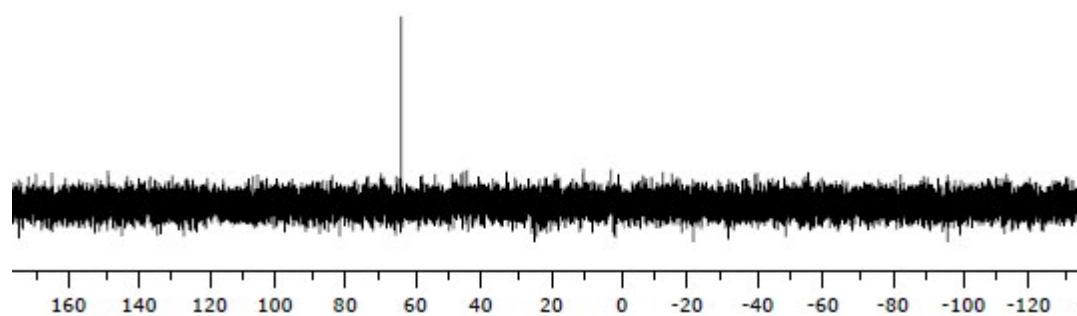


Figure 24. ^1H NMR Spectrum of **10** in CD_2Cl_2

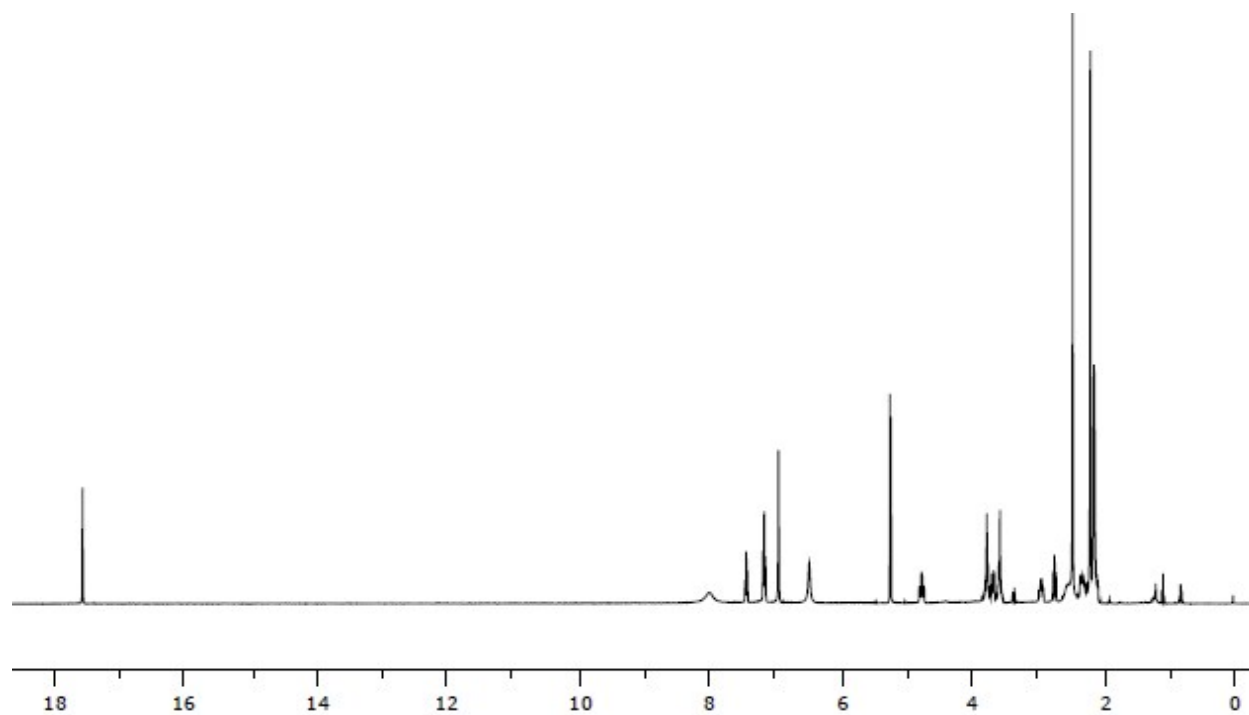


Figure 25. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **10** in CD_2Cl_2

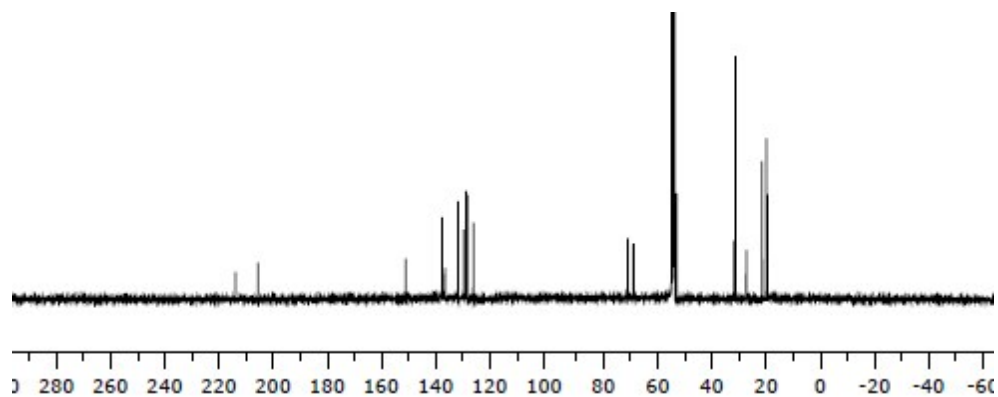


Figure 26. ^{11}B NMR Spectrum of **10** in CD_2Cl_2

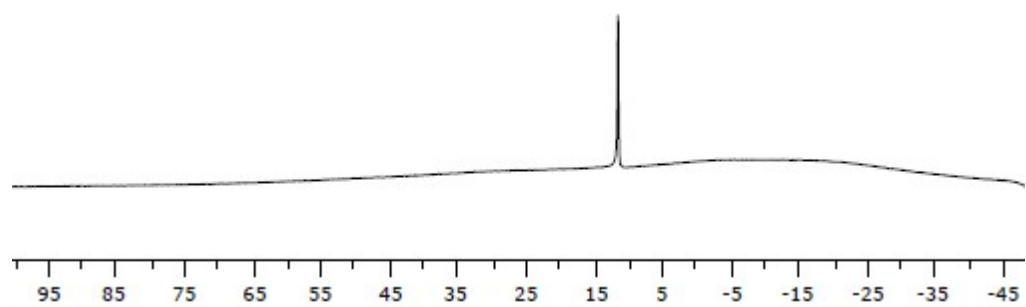


Figure 27. ^1H NMR Spectrum of **11** in CD_2Cl_2

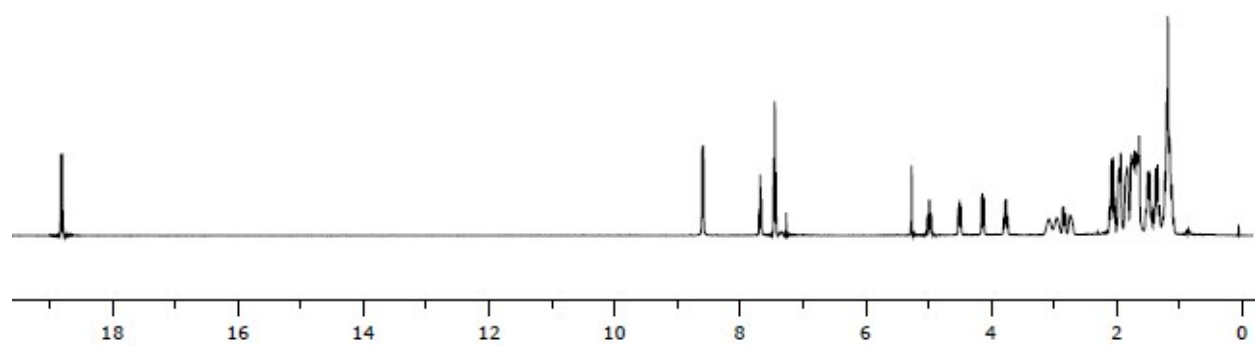


Figure 28. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **11** in CD_2Cl_2

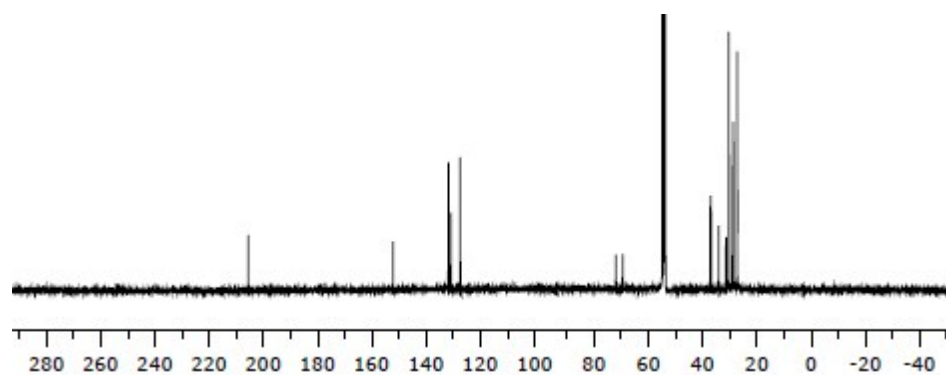


Figure 29. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **11** in CD_2Cl_2

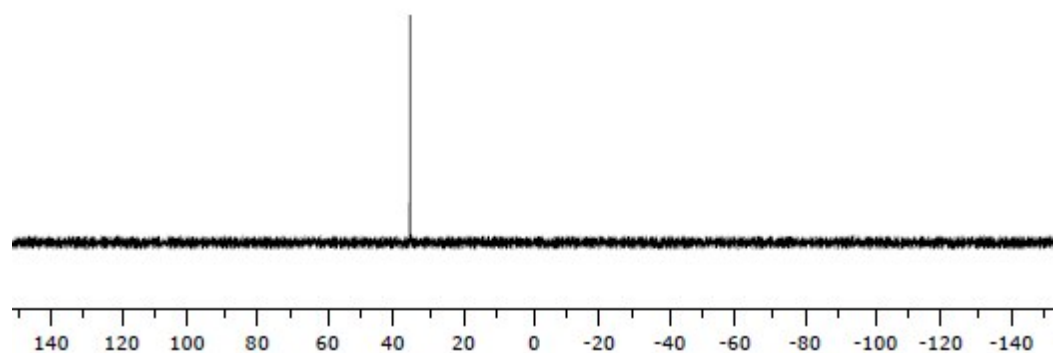


Figure 30. ^{11}B NMR Spectrum of **11** in CD_2Cl_2

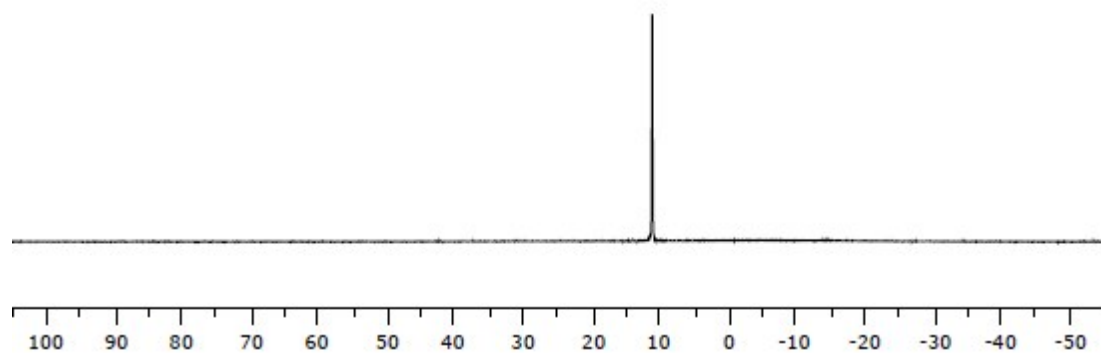


Figure 31. ^1H NMR Spectrum of **12** in CD_2Cl_2

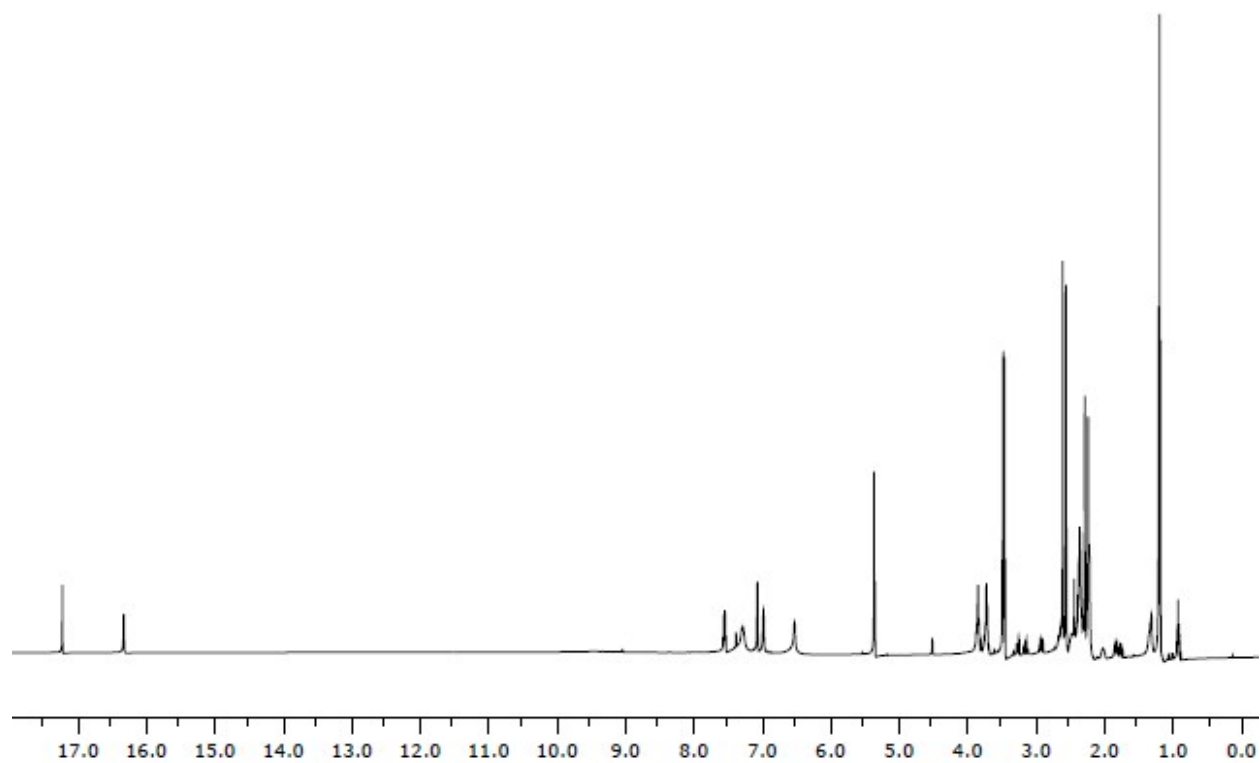


Figure 32. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **12** in CD_2Cl_2

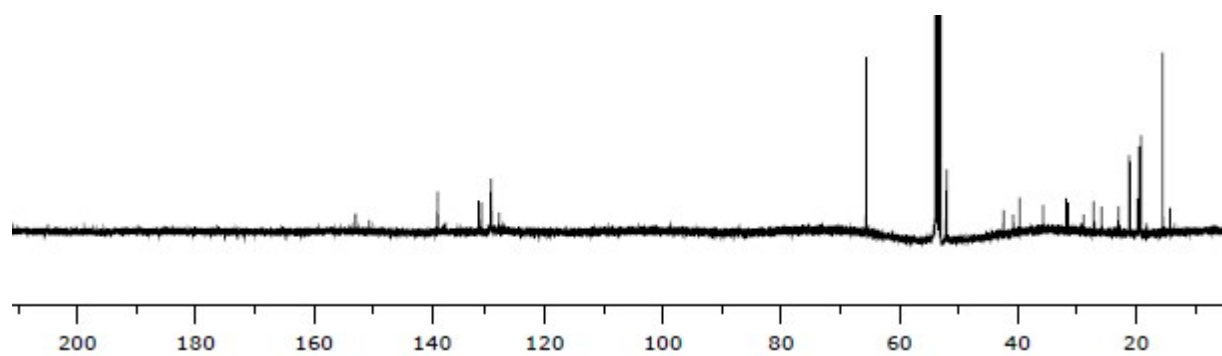


Figure 33. ^{11}B NMR Spectrum of **12** in CD_2Cl_2

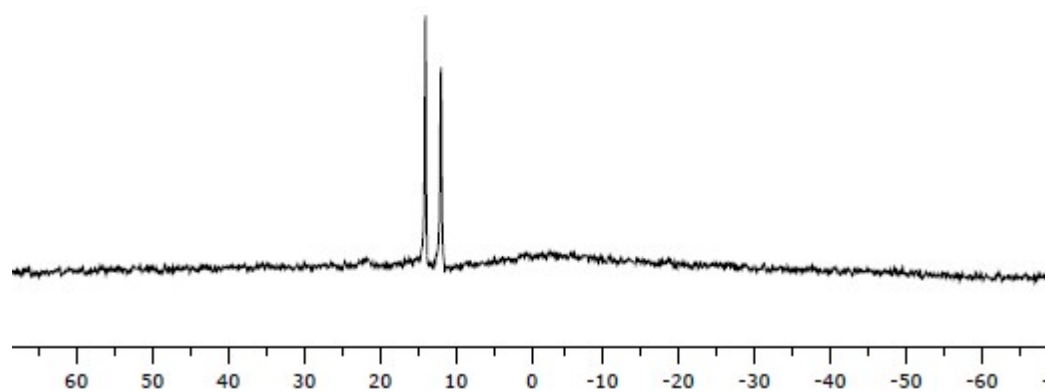


Figure 34. ^1H NMR Spectrum of **13** in CD_2Cl_2

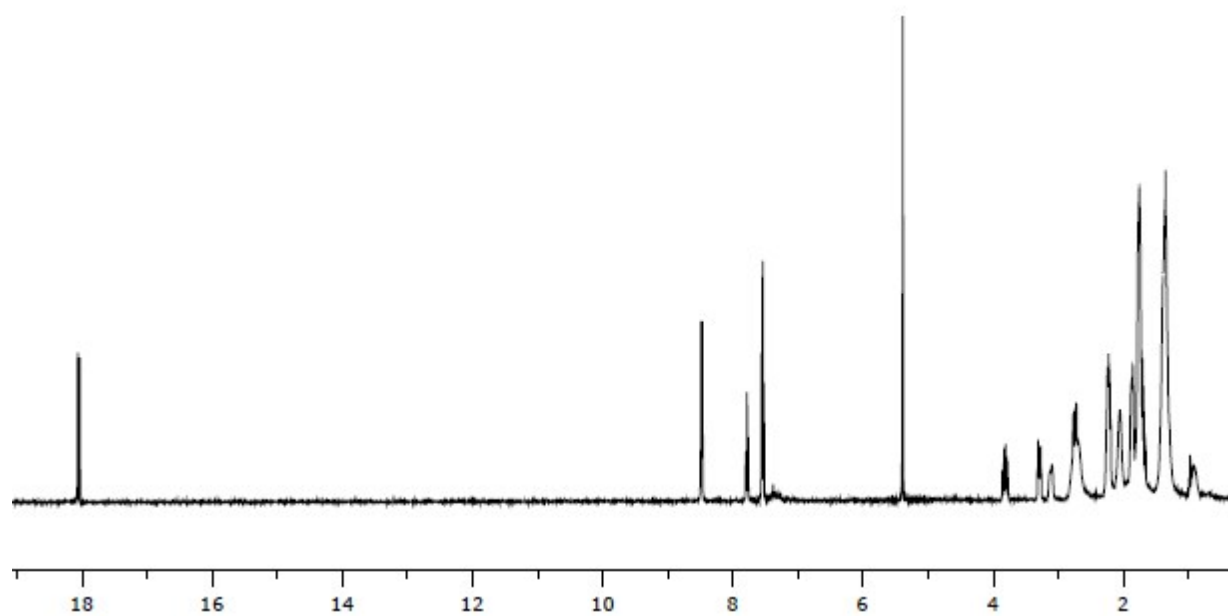


Figure 35. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **13** in CD_2Cl_2

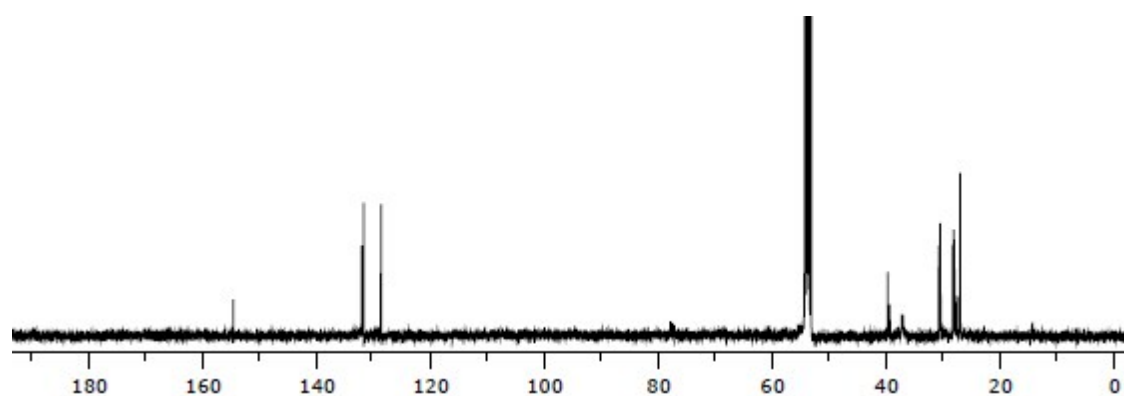


Figure 36. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **13** in CD_2Cl_2

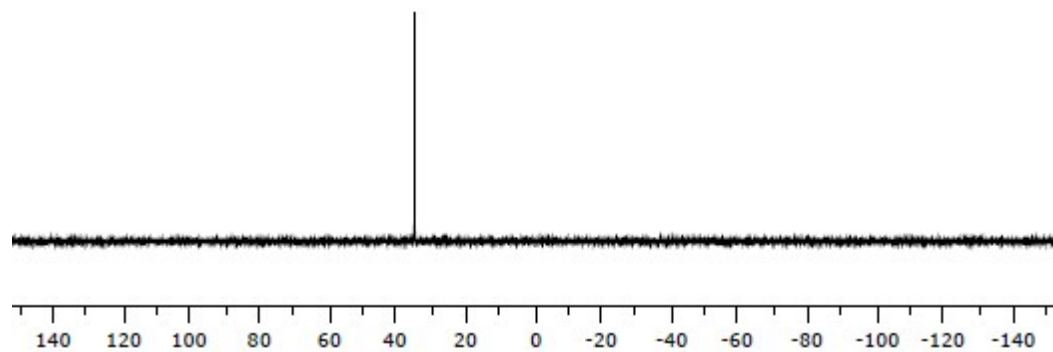


Figure 37. ^{11}B NMR Spectrum of **13** in CD_2Cl_2

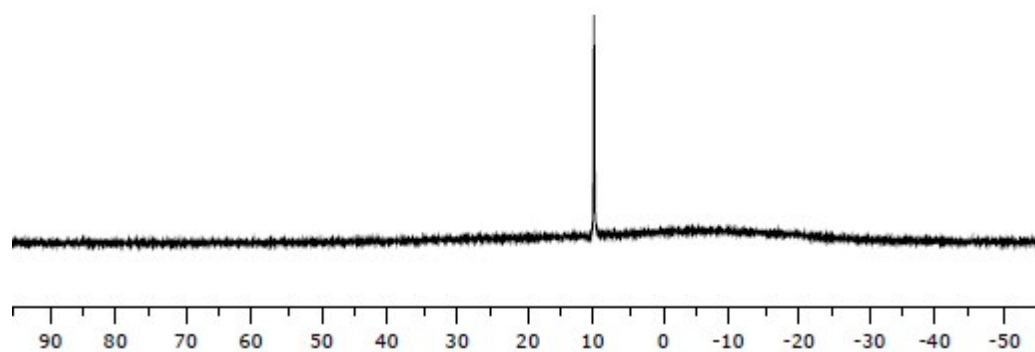


Figure 38. ^1H NMR Spectrum of **14** in CD_2Cl_2

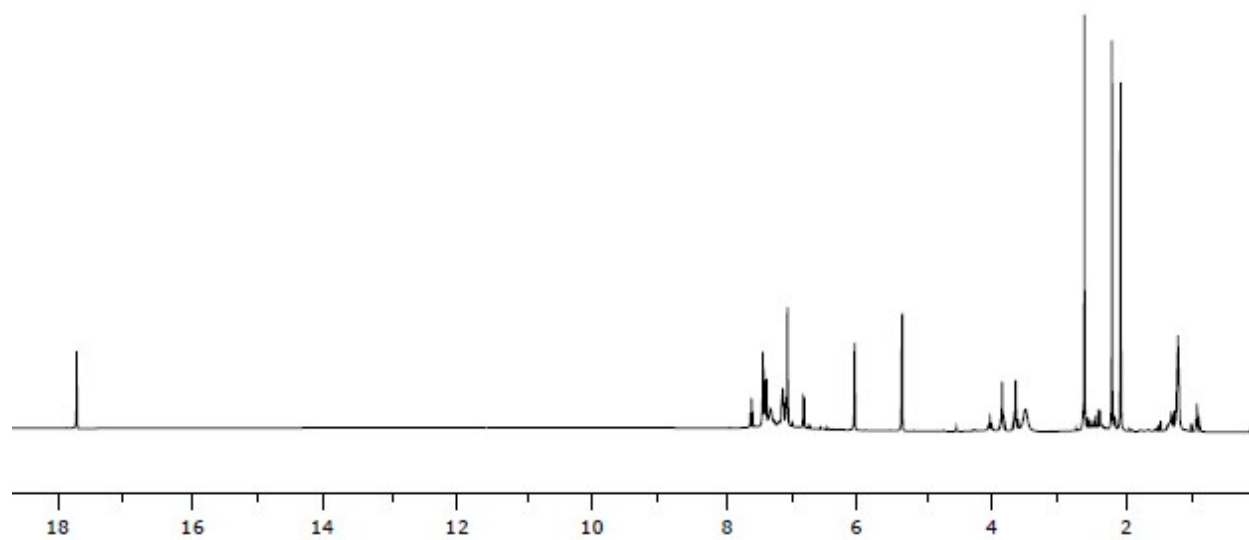


Figure 39. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **14** in CD_2Cl_2

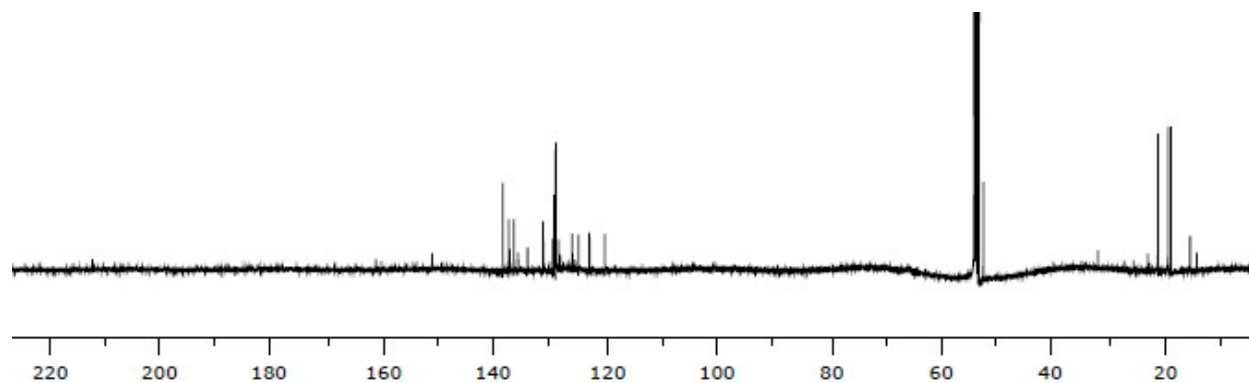


Figure 40. ^1H NMR Spectrum of **15** in CD_2Cl_2

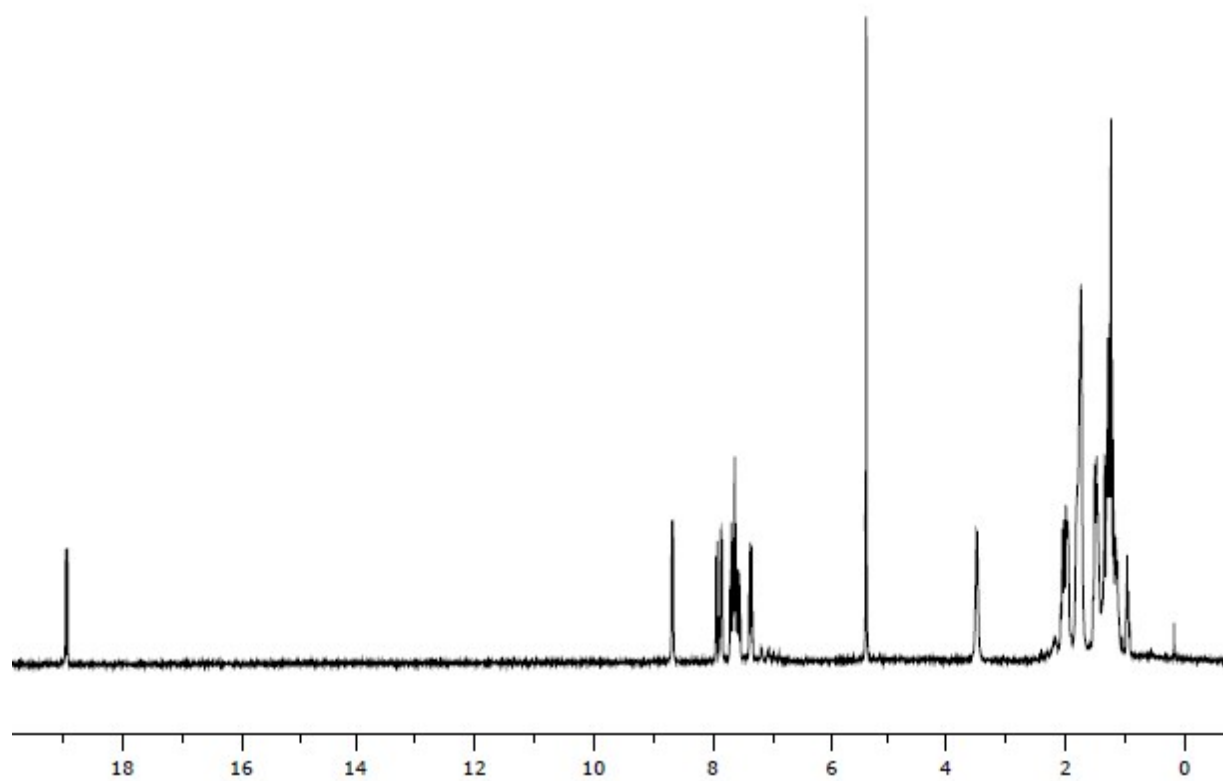


Figure 41. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **15** in CD_2Cl_2

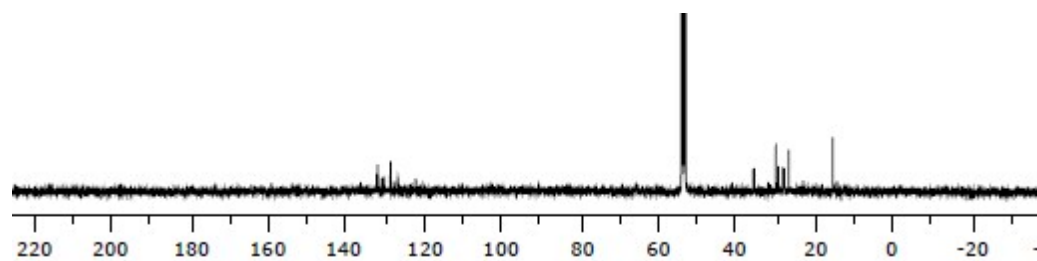


Figure 42. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **15** in CD_2Cl_2

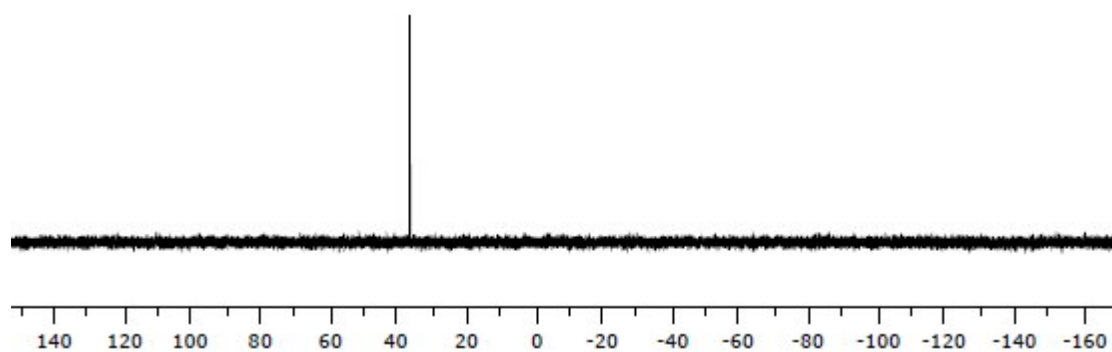


Figure 43. ^{11}B NMR Spectrum of **15** in CD_2Cl_2

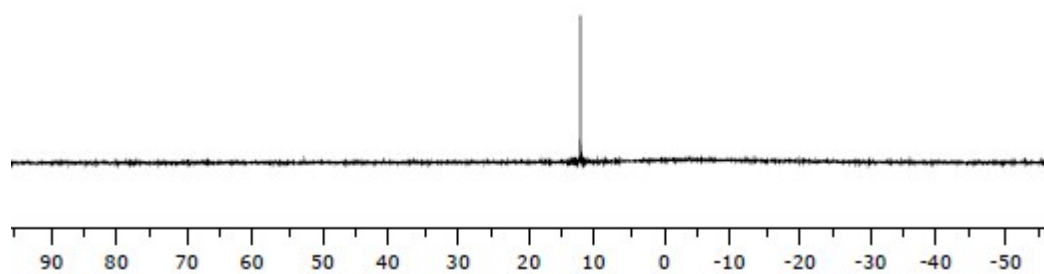


Figure 44. ^1H NMR Spectrum of **16** in CD_2Cl_2

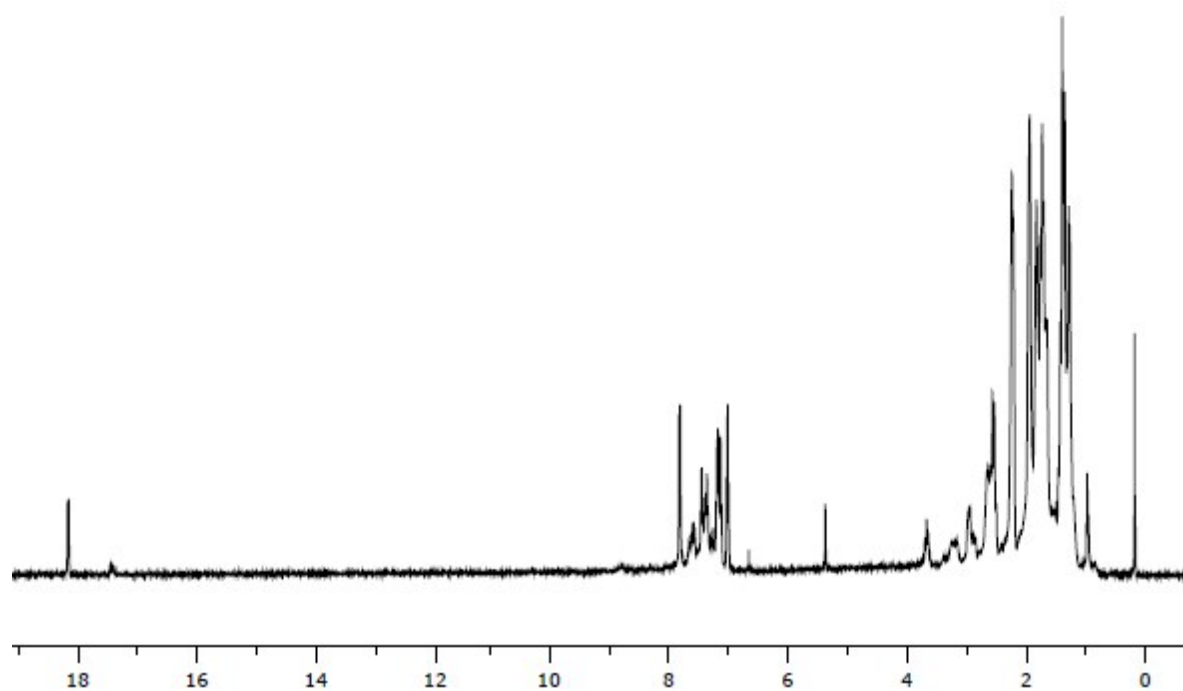


Figure 45. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **16** in CD_2Cl_2

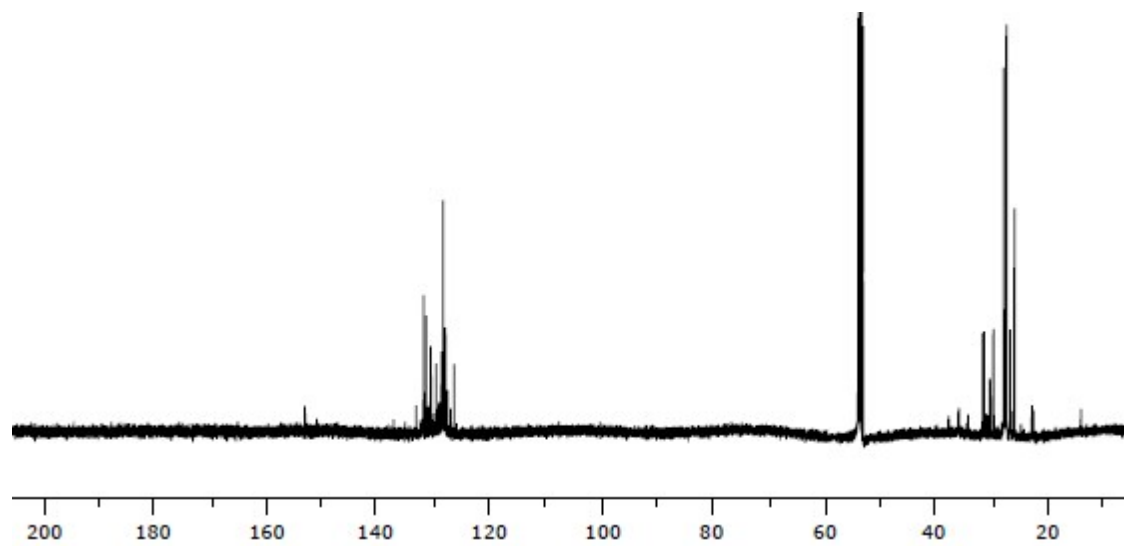


Figure 46. $^{31}\text{P}\{^1\text{H}\}$ NMR Spectrum of **16** in CD_2Cl_2

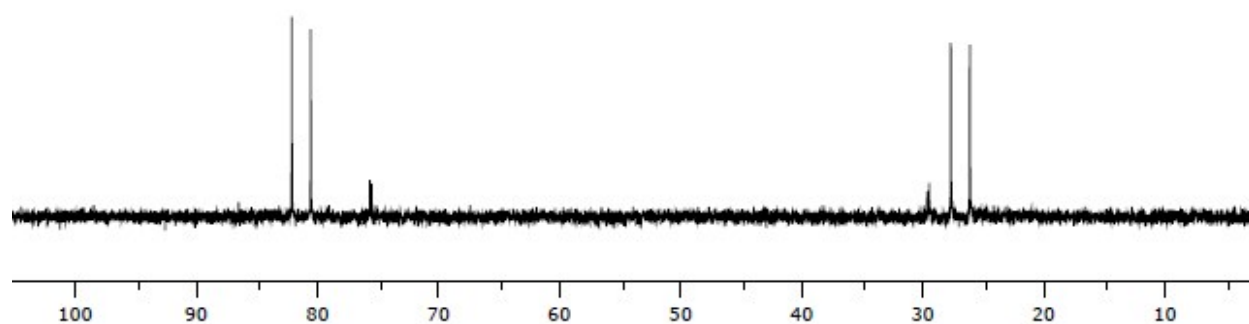


Figure 47. ^{11}B NMR Spectrum of **16** in CD_2Cl_2

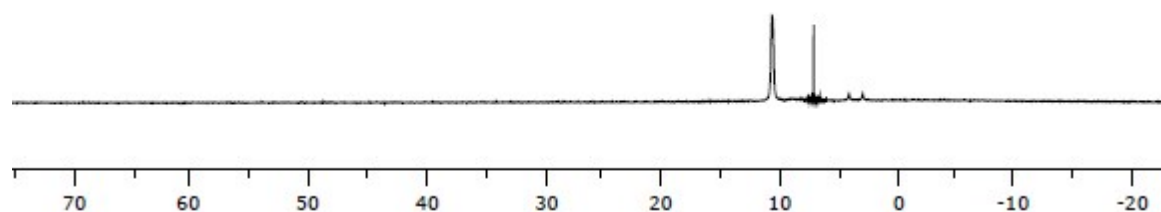


Figure 48. ^1H NMR Spectrum of **17** in CD_2Cl_2

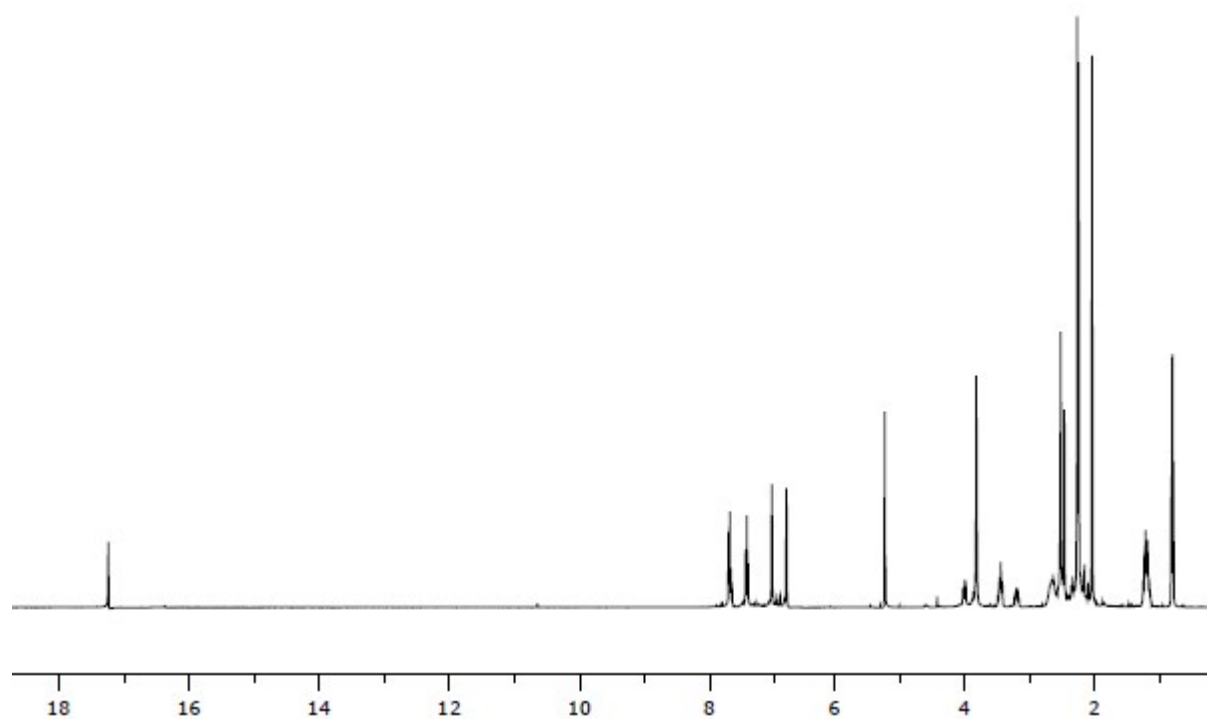


Figure 49. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **17** in CD_2Cl_2

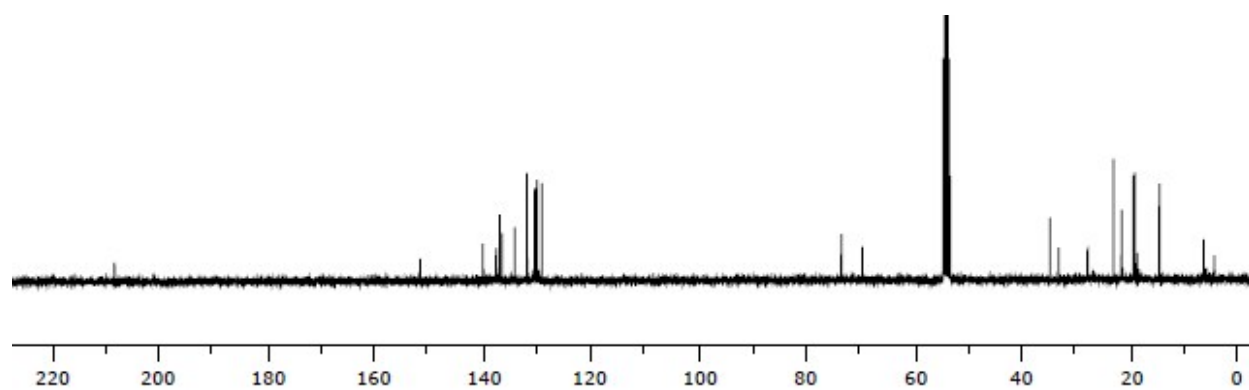


Figure 50. ^{11}B NMR Spectrum of **17** in CD_2Cl_2

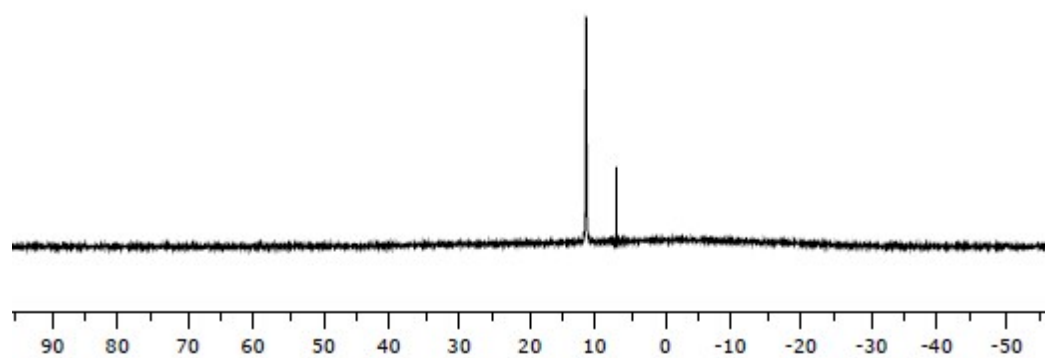


Figure 51. ^1H NMR Spectrum of **18** in CD_2Cl_2

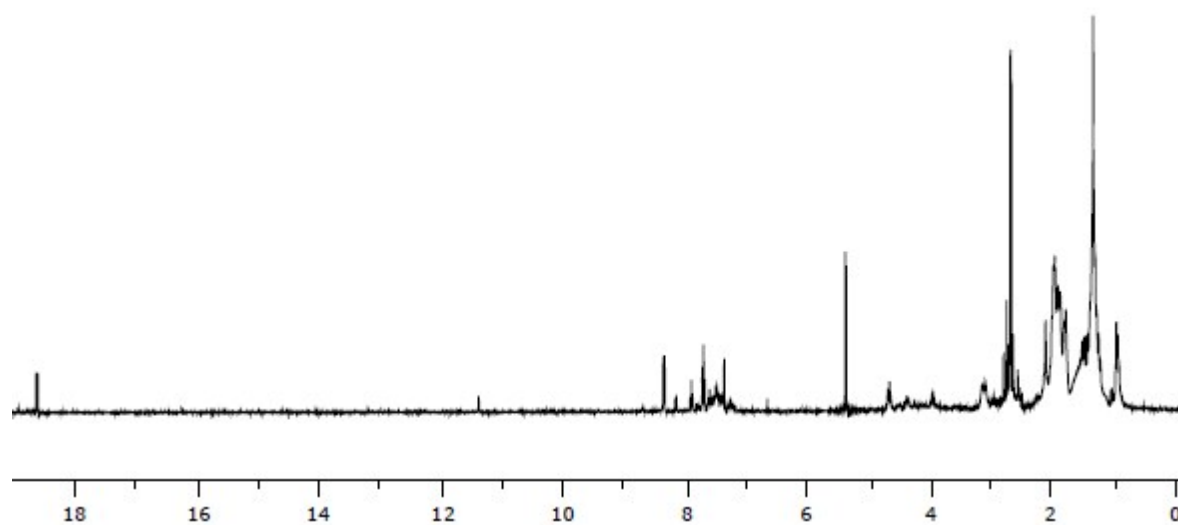


Figure 52. $^{13}\text{C}\{^1\text{H}\}$ NMR Spectrum of **18** in CD_2Cl_2

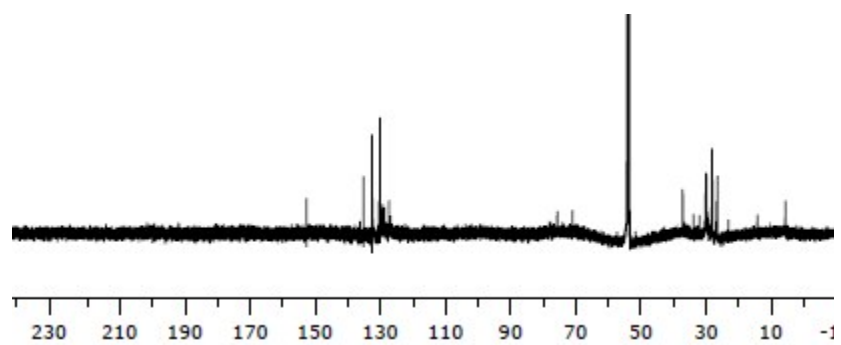


Figure 53. ^{11}B NMR Spectrum of **18** in CD_2Cl_2

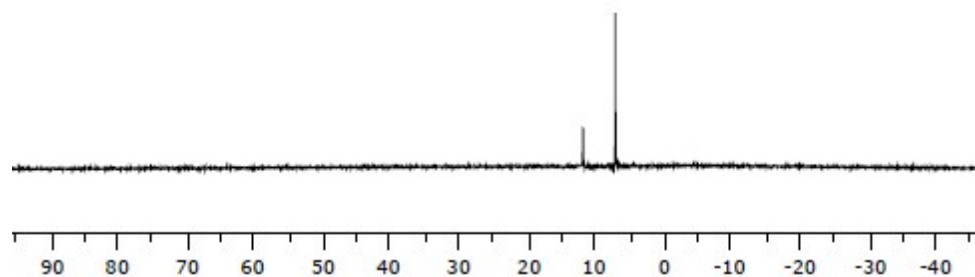


Table 1. RCM of diethyl diallylmallonate catalysis

Entry	Pre-Catalyst	Loading (mol%)	Time (min)	Conversion
1	1	5	40	98%
2	2	5	40	42%
3	3	5	40	0%
4	4	5	40	0%
5	5	5	40	36%
6	6	5	40	39%
7	7	5	40	3%
8	8	5	8	>99%
9	8	1	40	56%
10	9	5	30	>99%

Table 2. ROMP of 1,5-cyclooctadiene catalysis

Entry	Pre-Catalyst	Loading (mol%)	Time (min)	Conversion
1	1	0.1	40	53%
2	2	0.1	40	0%
3	3	0.1	40	0%
4	4	0.1	40	0%
5	5	0.1	40	86%
6	6	0.1	40	0%
7	7	0.1	40	0%
8	8	0.1	30	96%
9	9	0.1	40	0%

Table 3. CM of methyl acrylate and 5-hexenyl acetate catalysis

Entry	Pre-Catalyst	Loading (mol%)	Time (min)	Conversion
1	1	5	160	62%
2	2	5	160	0%
3	3	5	160	0%
4	4	5	160	0%
5	5	5	160	74%
6	6	5	160	0%
7	7	5	160	0%
8	8	5	160	31%
9	9	5	160	0%