Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Design and synthesis of a new magnetic metal organic framework as a versatile platform for immobilization of acidic catalysts and CO_2 fixation

Faezeh Taghavi, Amir Khojastehnezhad, Reza Khalifeh, Maryam Rajabzadeh, Fahimeh Rezaei, Khalil Abnous, and Seyed Mohammad Taghdisi

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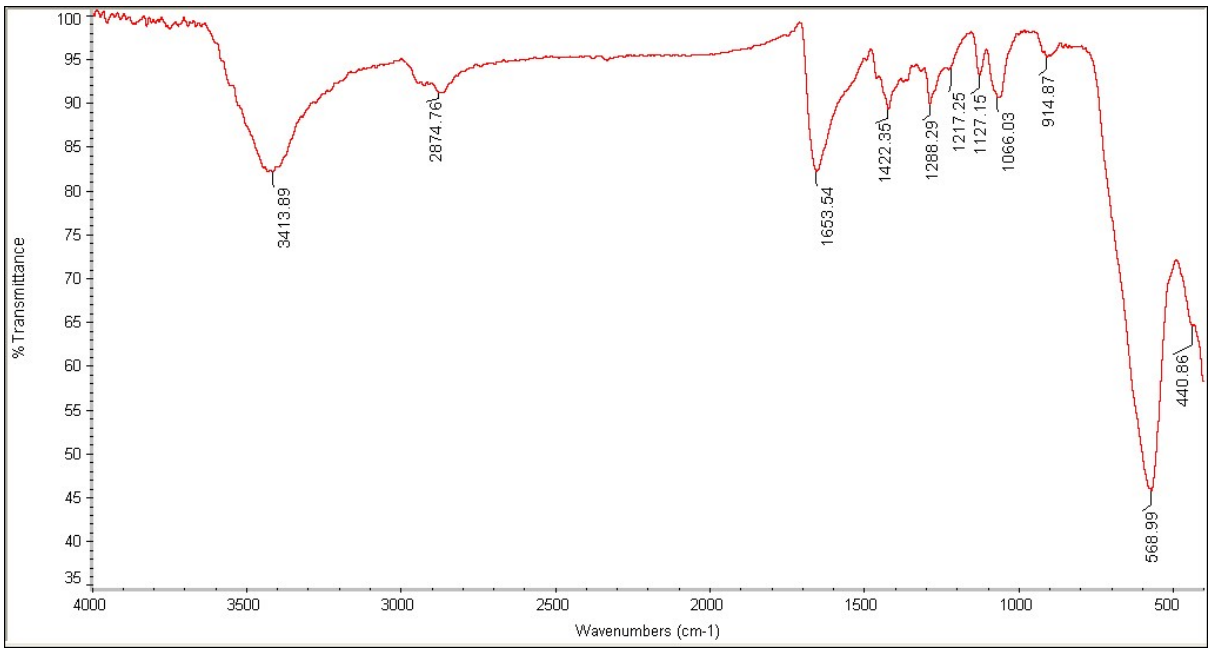


Fig. S1. FT-IR of Fe_3O_4 MNPs

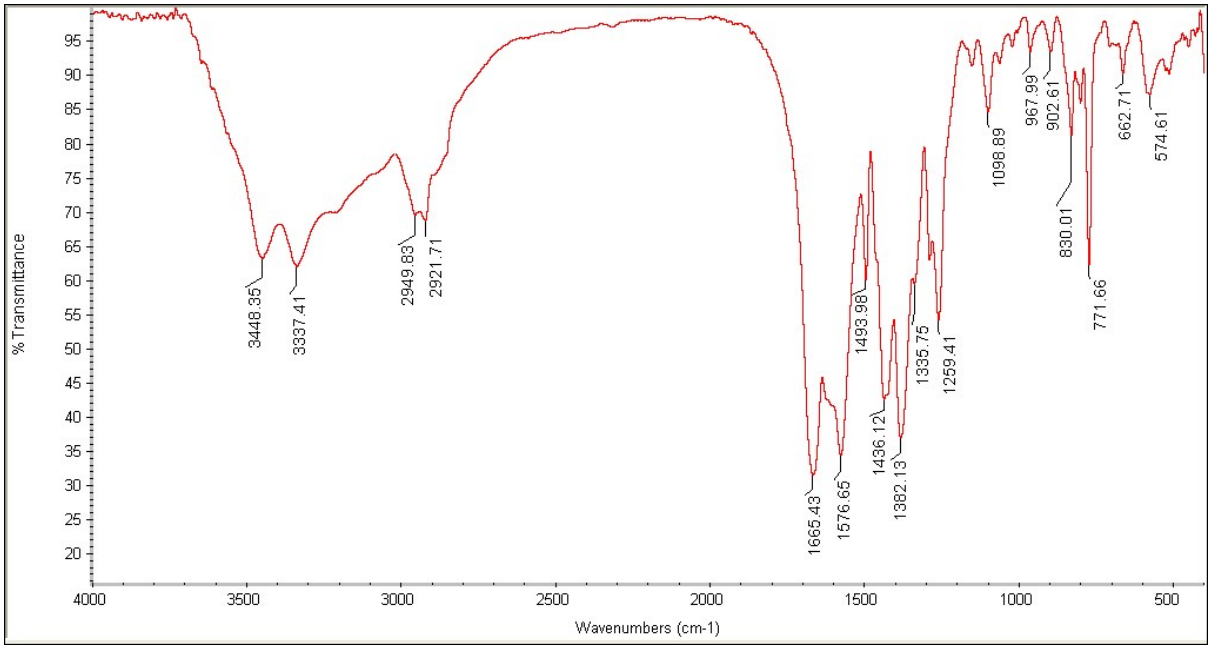


Fig. S2. FT-IR of pure IRMOF-3

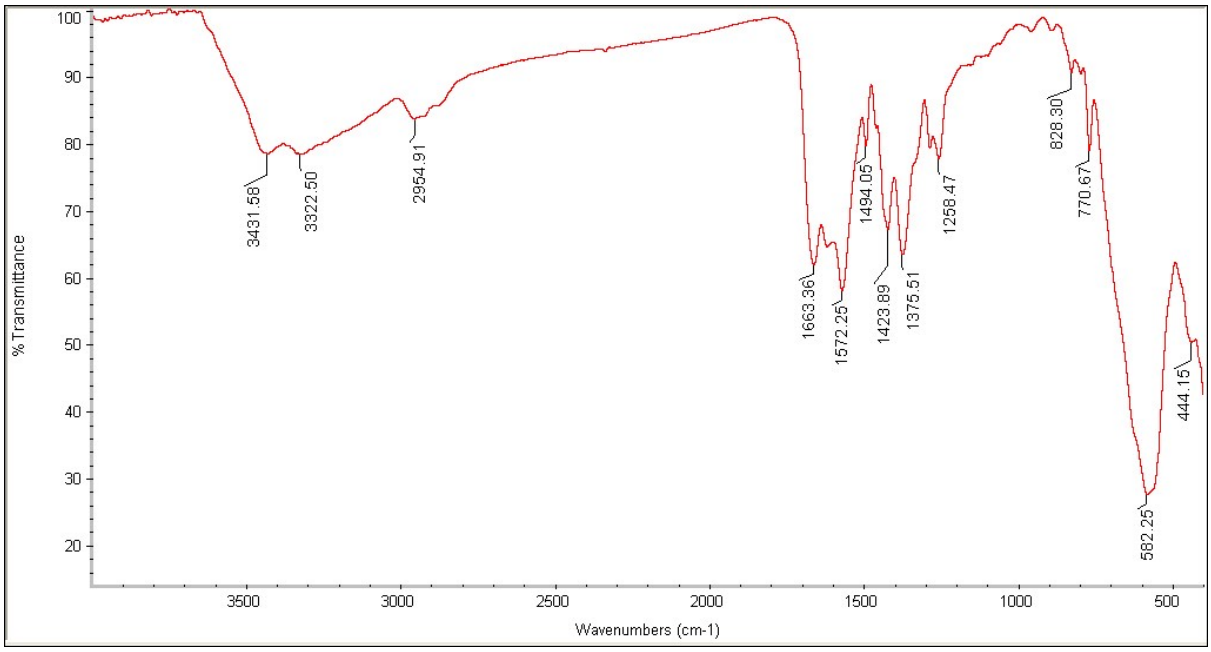


Fig. S3. FT-IR of MNP@MOF

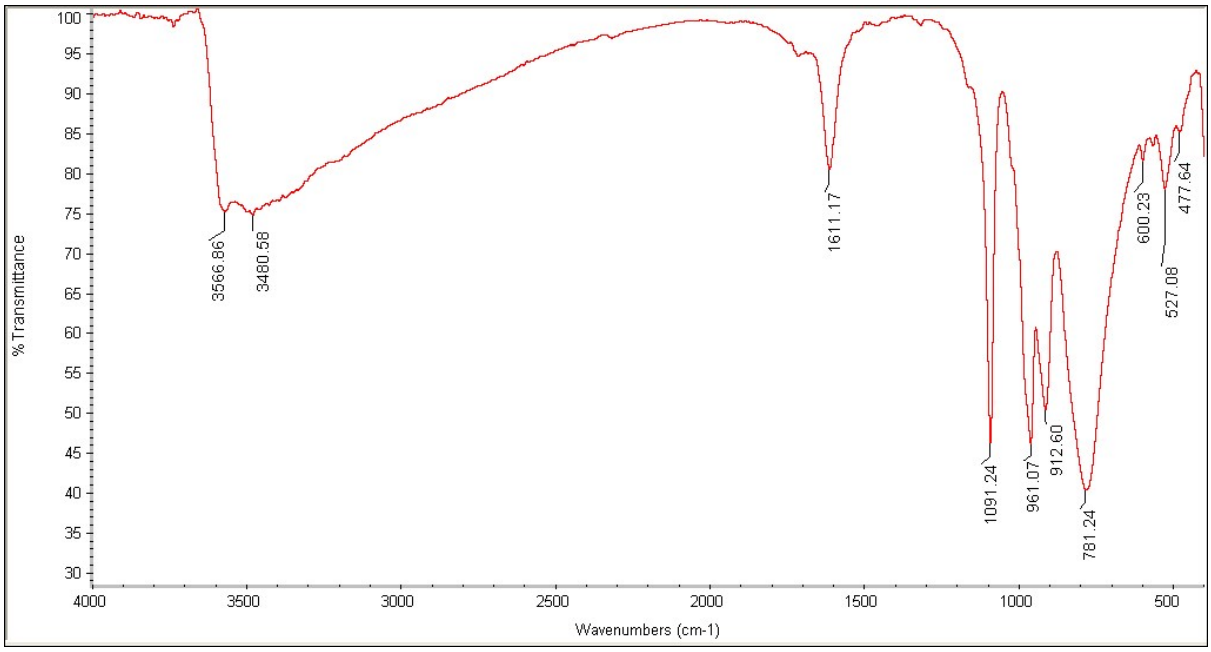


Fig. S4. FT-IR of PR HPA

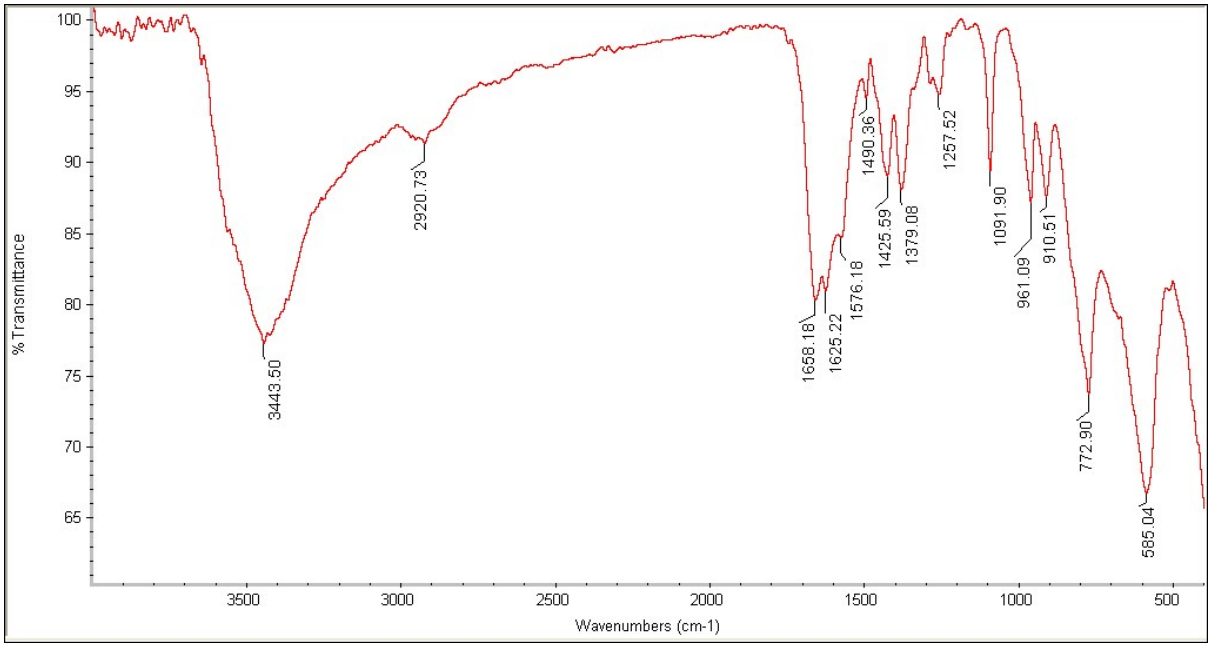


Fig. S5. FT-IR of MNP@MOF-PR

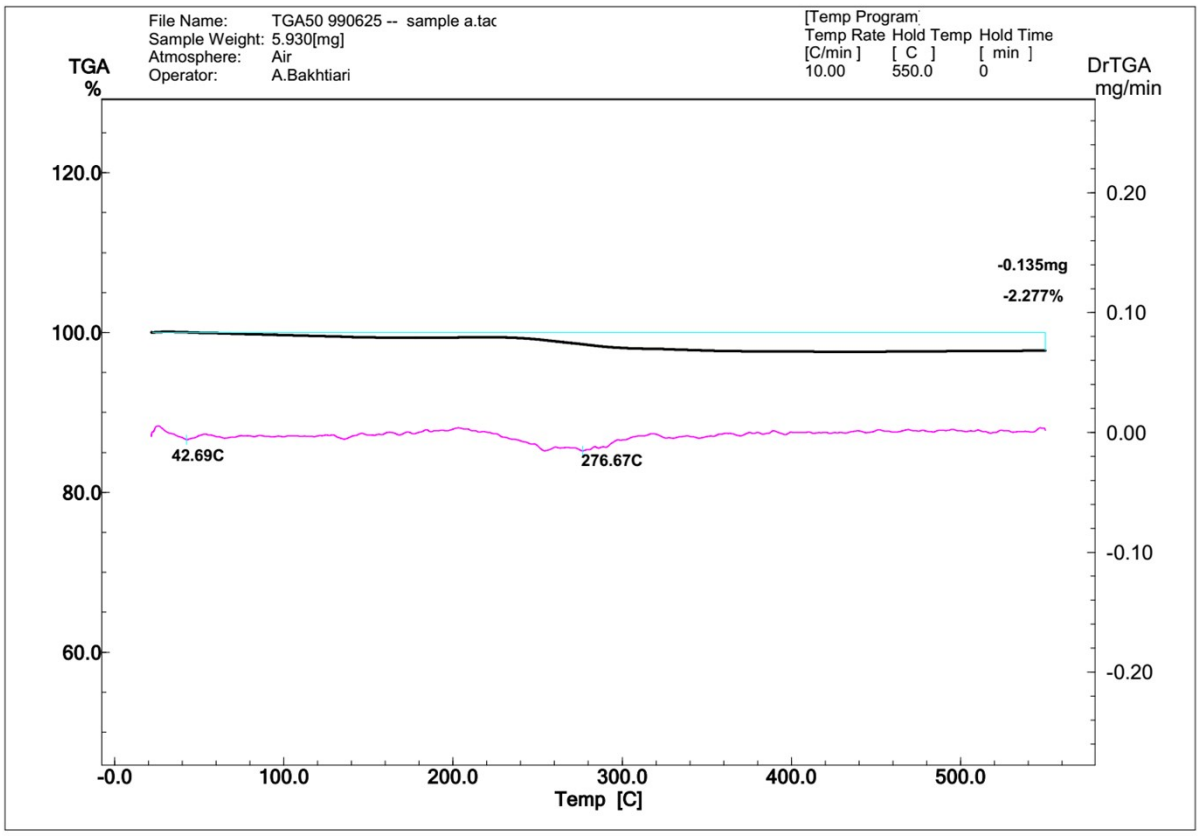


Fig. S6. TGA plot of Fe_3O_4 MNPs

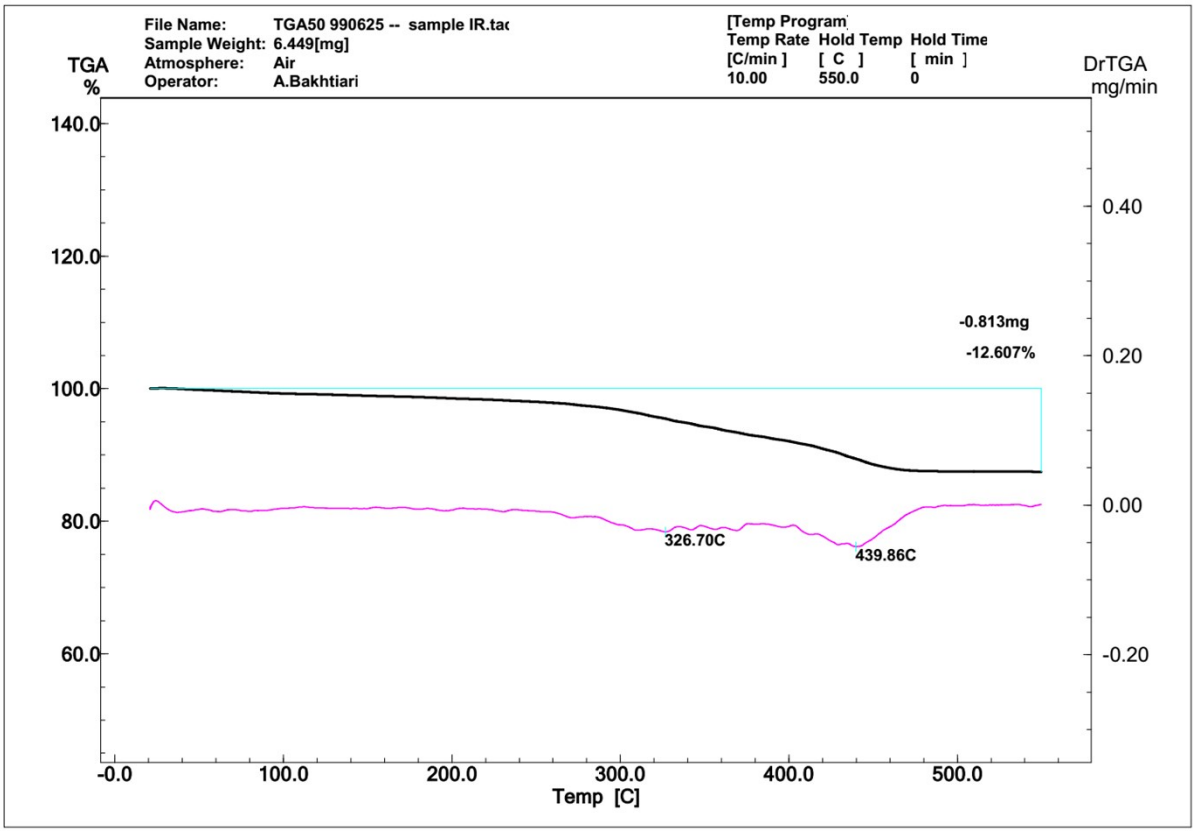


Fig. S7. TGA plot of MNP@MOF

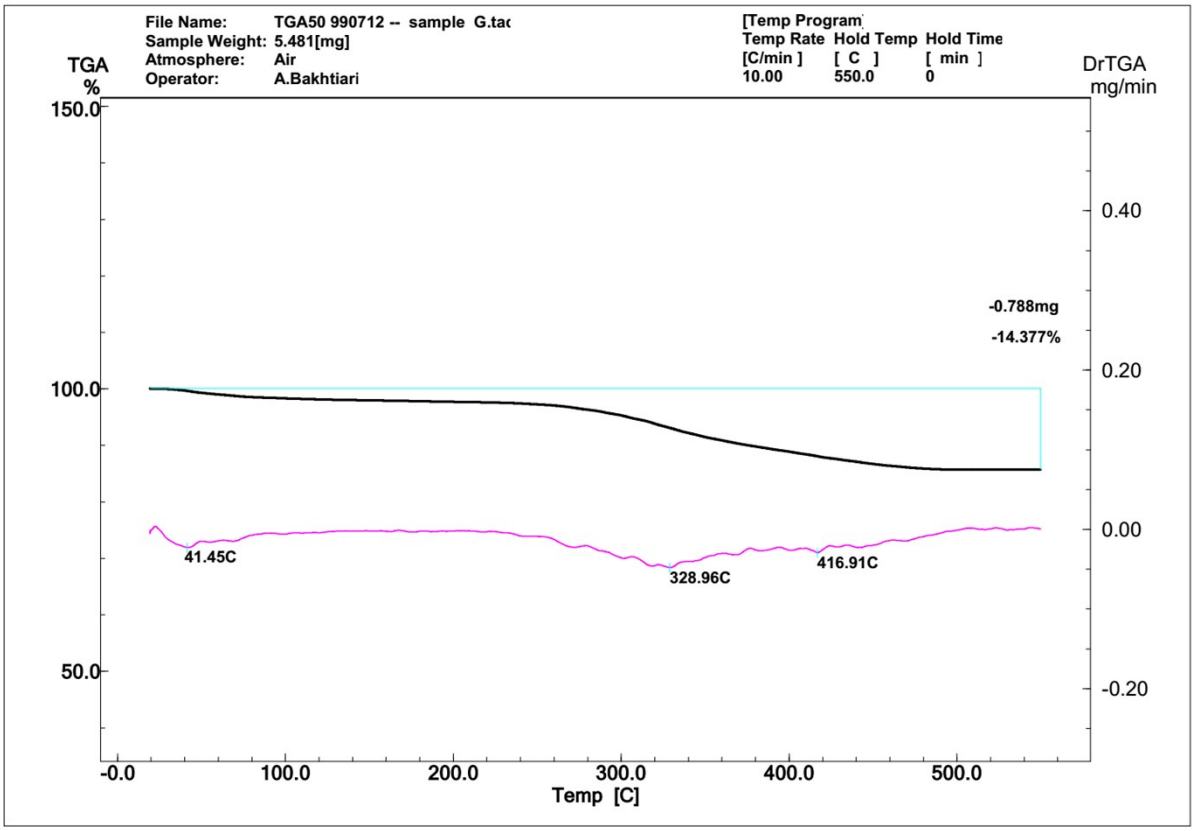


Fig. S8. TGA plot of MNP@MOF-PR

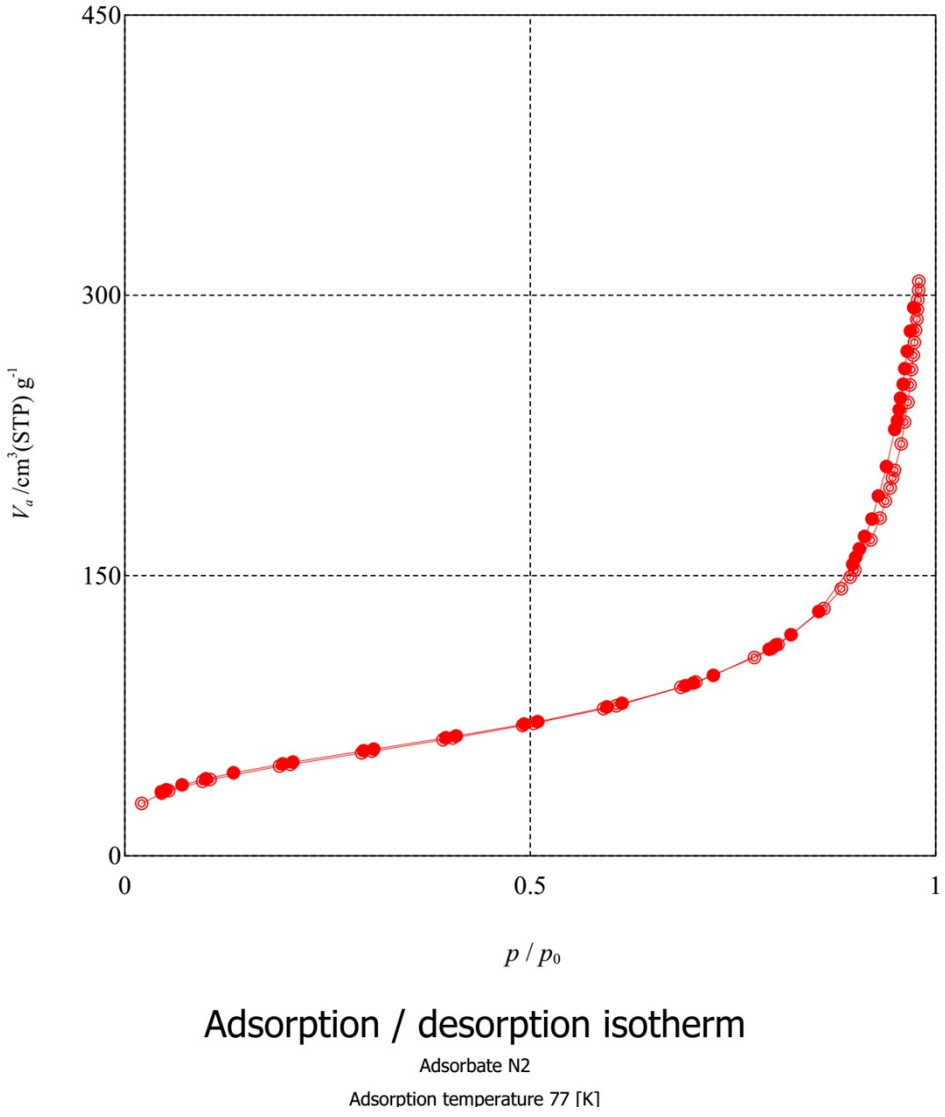


Fig. S9 Nitrogen adsorption–desorption isotherms of MNP@MOF

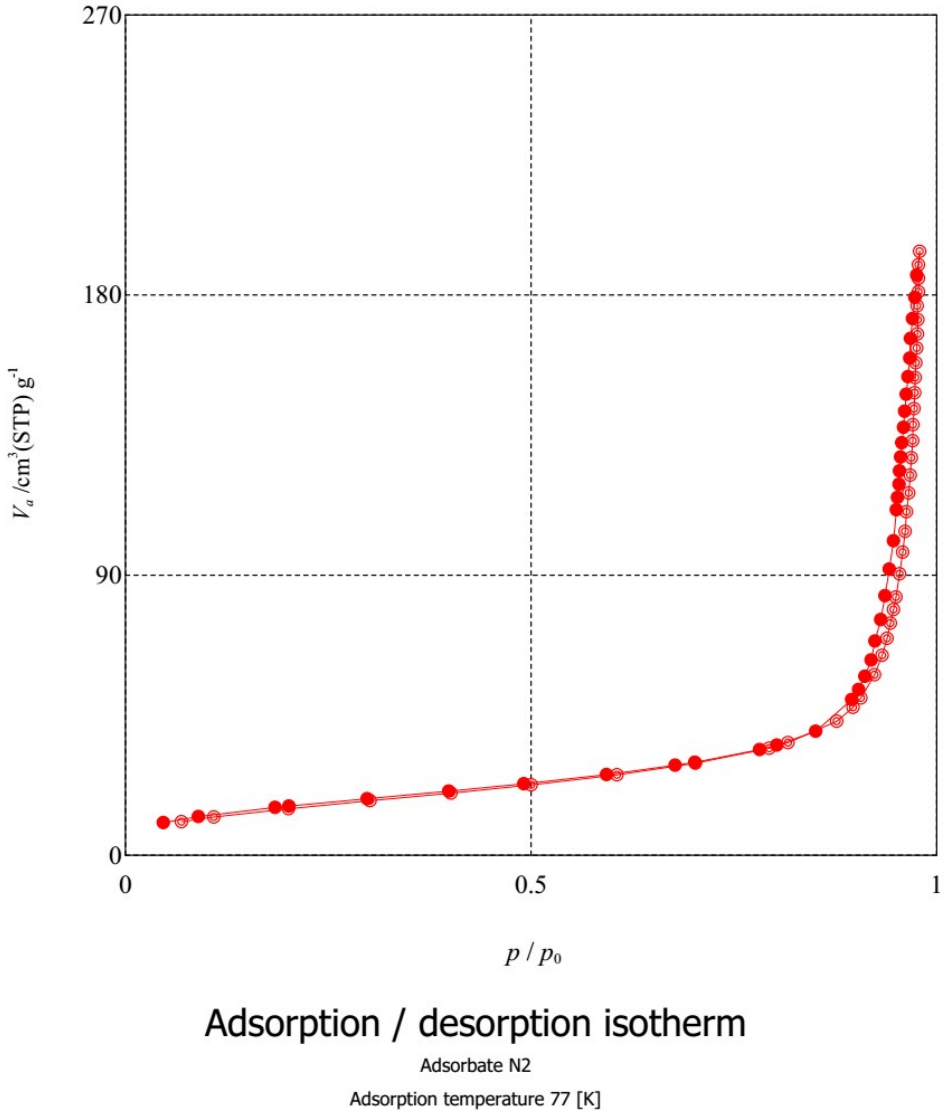


Fig. S10 Nitrogen adsorption–desorption isotherms of MNP@MOF-PR

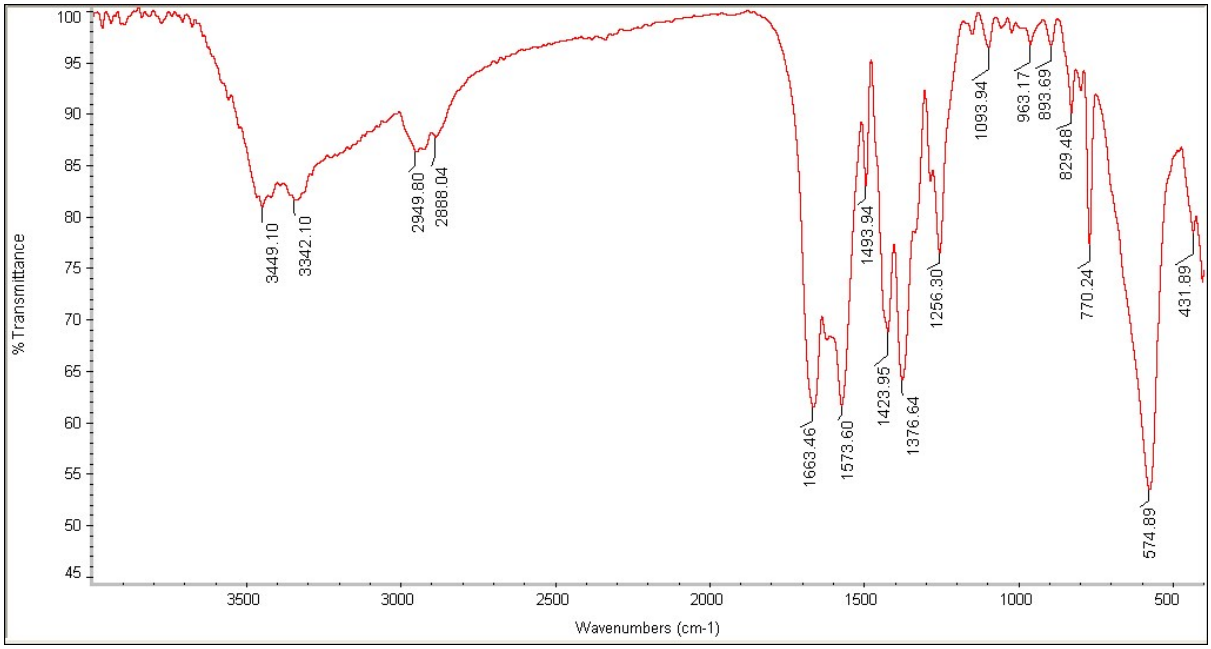


Fig. S11. FT-IR of Reused MNP@MOF-PR

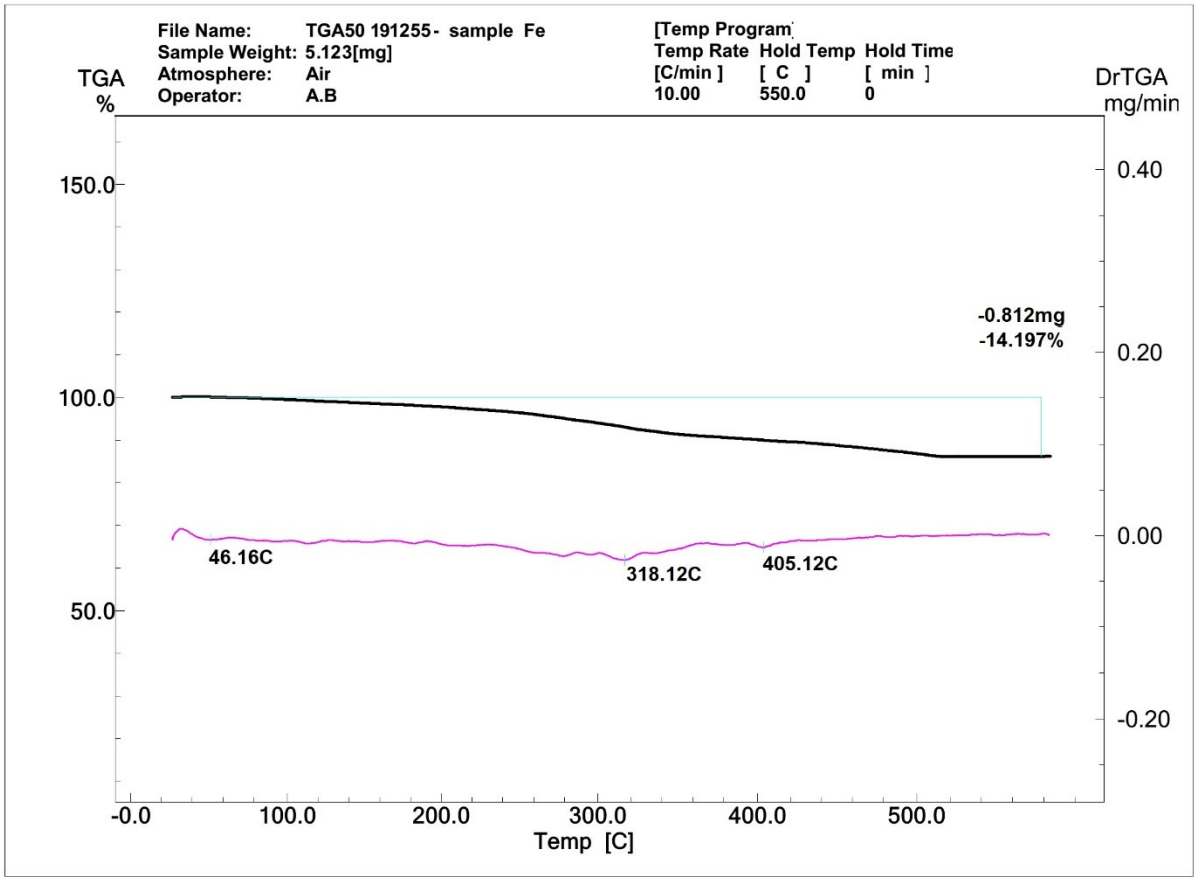


Fig. S12. TGA plot of reused MNP@MOF-PR

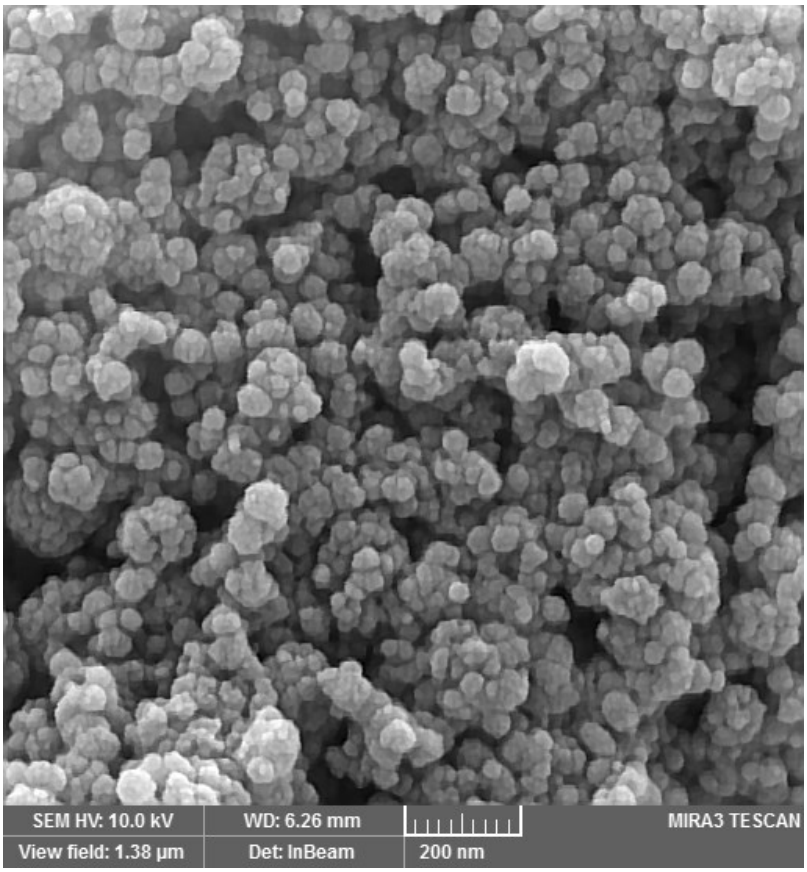


Fig. S13. SEM image of reused MNP@MOF-PR

4-phenyl-1,3-dioxolan-2-one (Table 2, Entry 1)

^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 4.33 (t, 1H, *J*= 9Hz), 4.80 (t, 1H, *J*= 9 Hz), 5.68 (t, 1H, *J*= 9Hz), 7.34-7.45 (m, 5H). ^{13}C NMR (75 MHz, $CDCl_3$), δ (ppm): 71.2, 78.0, 125.9, 129.2, 129.7, 135.8, 154.9.

4-((3,4-dimethylphenoxy)methyl)-1,3-dioxolan-2-one (Table 2, Entry 2)

^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 2.21 (d, 6H, *J*= 9Hz), 4.04-4.21 (m, 2H), 4.46- 4.60 (m, 2H), 4.96-5.03 (m, 1H), 6.62-7.26 (m, 3H). ^{13}C NMR ($CDCl_3$, 100 MHz): δ (ppm): 18.9, 19.9, 66.3, 67.2, 74.7, 111.5, 116.3, 129.9, 130.5, 138.0, 155.2, 156.2.

4-((4-isopropylphenoxy) methyl)-1,3-dioxolan-2-one (Table 2, Entry 3)

^{1}H NMR ($CDCl_3$, 100 MHz): δ (ppm): 1.22 (d, 6H, *J*=6Hz), 2.82-2.93 (m, 1H), 4.12-4.24 (m, 2H), 4.51-4.60 (m, 2H), 4.98-5.05 (m, 1H), 6.84 (d, 2H, *J*= 6), 7.15 (d, 1H, *J*= 9). ^{13}C NMR ($CDCl_3$, 75 MHz): δ (ppm): 24.2, 33.3, 66.3, 67.0, 74.4, 114.5, 127.5, 142.4, 154.9, 155.9.

4-((4-bromophenoxy) methyl)-1,3-dioxolan-2-one (Table 2, Entry 4)

^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 4.08-4.24 (m, 2H), 4.50-4.65 (m, 2H), 4.99-5.08 (m, 1H), 6.79 (d, 2H, *J*= 9 Hz), 7.40 (d, 2H, *J*= 9 Hz). ^{13}C NMR ($CDCl_3$, 75 MHz): δ (ppm): 66.1, 67.2, 74.0, 114.3, 116.4, 132.5, 154.6, 156.9.

4-(phenoxymethyl)-1,3-dioxolan-2-one (Table 2, Entry 5)

^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 4.05-4.20 (m, 2H), 4.45-4.58 (m, 2H), 4.93-4.99 (m, 1H), 6.84 (d, 2H, *J*= 9 Hz), 6.95 (t, 1H, *J*= 9 Hz), 7.24 (t, 2H, *J*= 9 Hz). ^{13}C NMR (75 MHz, $CDCl_3$), δ (ppm): 66.2, 66.8, 74.1, 114.6, 122.0, 129.7, 154.6, 157.7.

(2-oxo-1,3-dioxolan-4-yl)methyl methacrylate (Table 2, Entry 6)

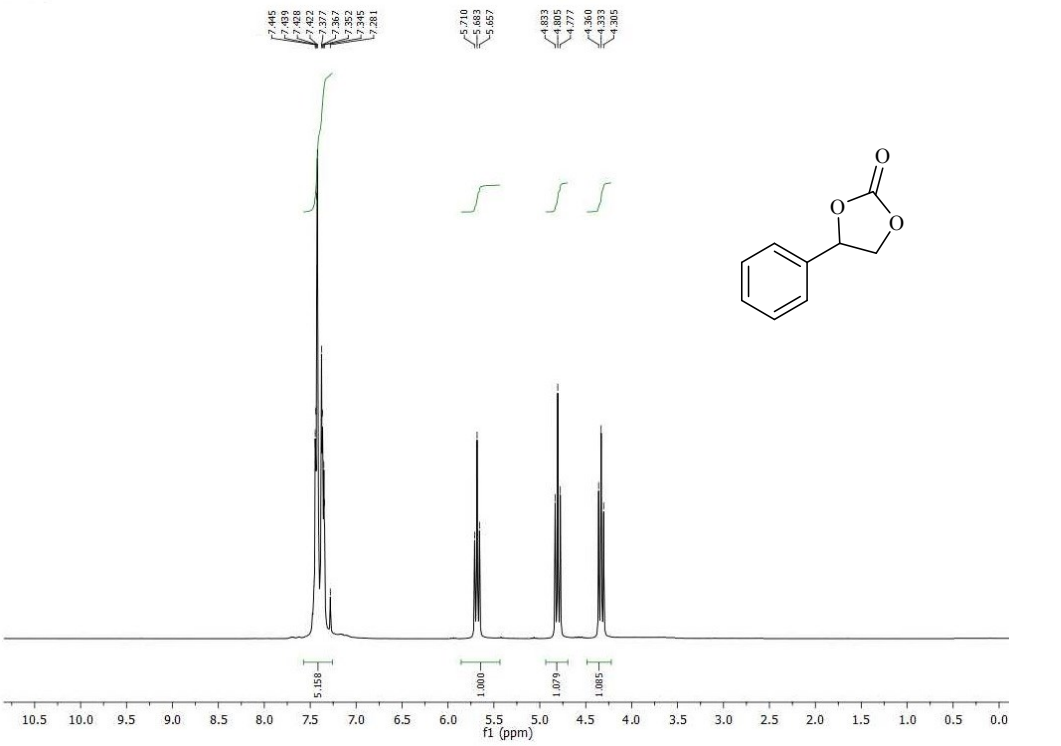
^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 1.88 (s, 3H), 4.23-4.40 (m, 3H), 4.53 (t, 1H, *J*= 9 Hz), 4.90-4.97 (m, 1H), 5.60 (s, 1H), 6.08 (s, 1H). ^{13}C NMR (75 MHz, $CDCl_3$), δ (ppm): 18.1, 63.4, 66.1, 73.8, 127.3, 135.1, 154.5, 166.7.

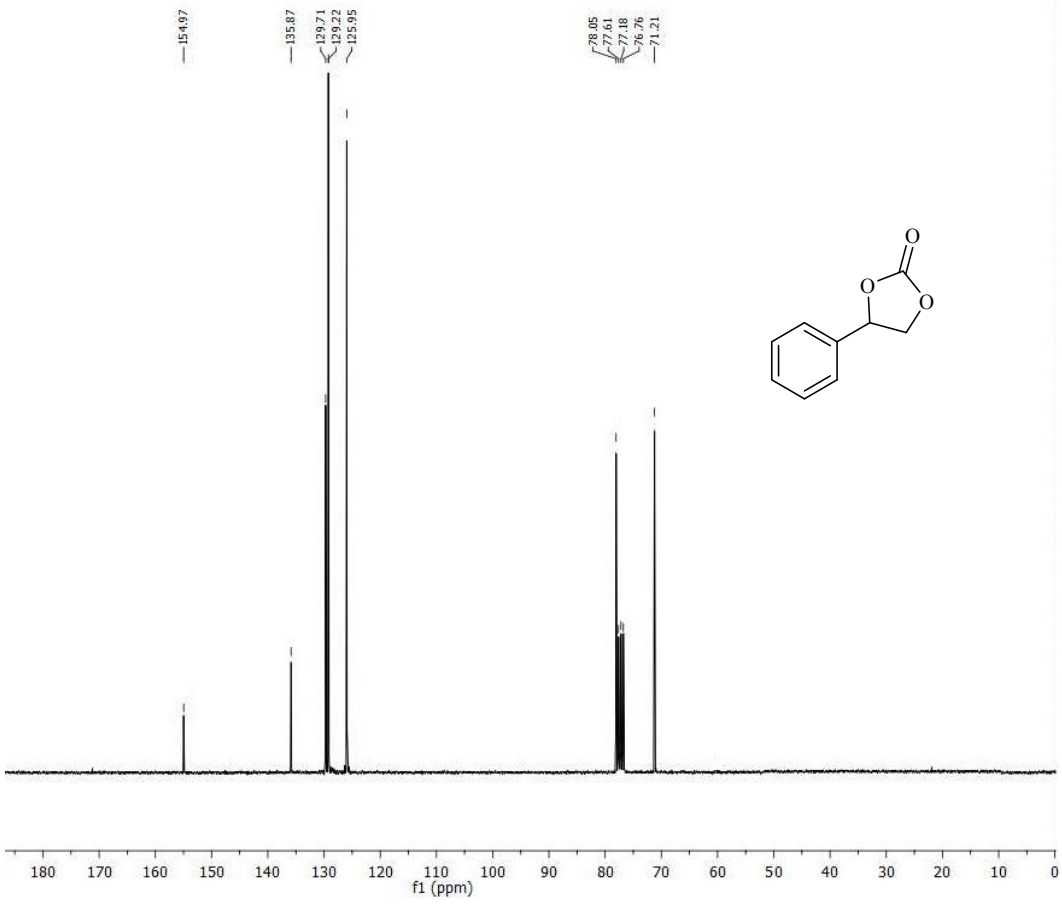
4-(chloromethyl)-1,3-dioxolan-2-one (Table 2, Entry 8)

^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 3.75 (dd, 2H, J_1= 21 Hz, J_2= 9 Hz), 4.37 (d, 1H, *J*= 6Hz), 4.57 (t, 1H, *J*= 6 Hz), 5.00 (s, 1H). ^{13}C NMR (75 MHz, $CDCl_3$), δ (ppm): 44.8, 63.4, 73.9, 154.6.

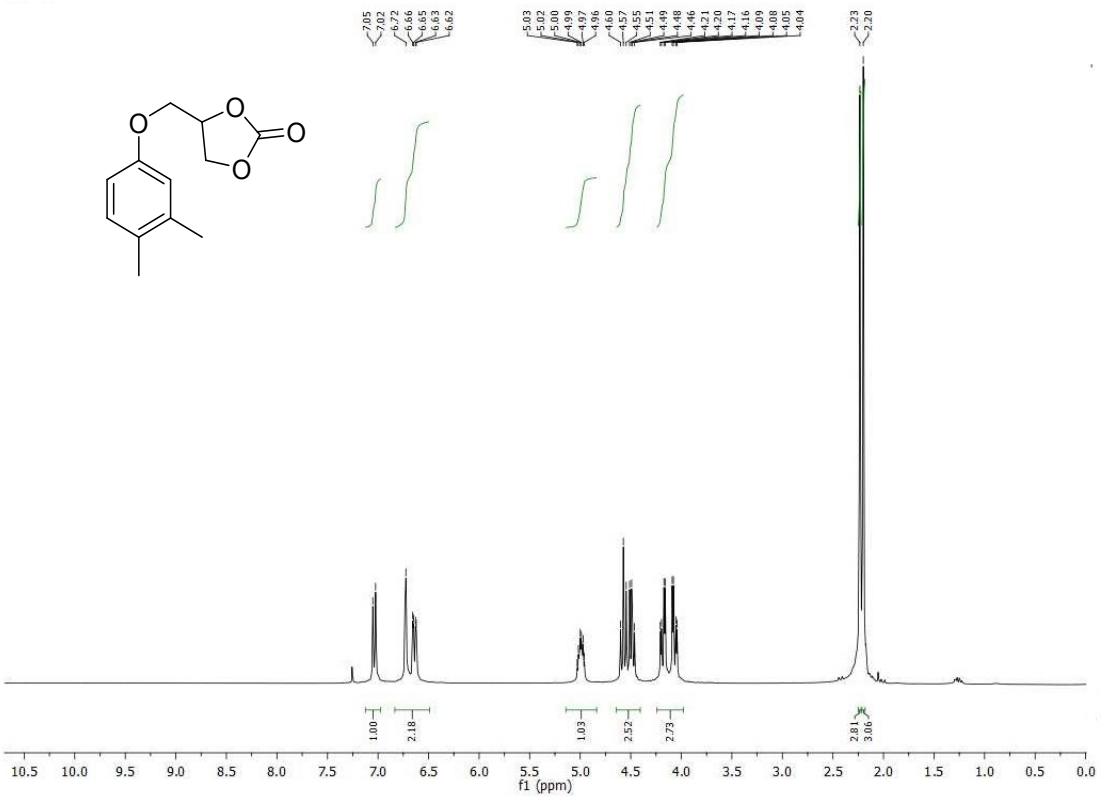
hexahydrobenzo[d][1,3]dioxol-2-one (Table 2, Entry 9)

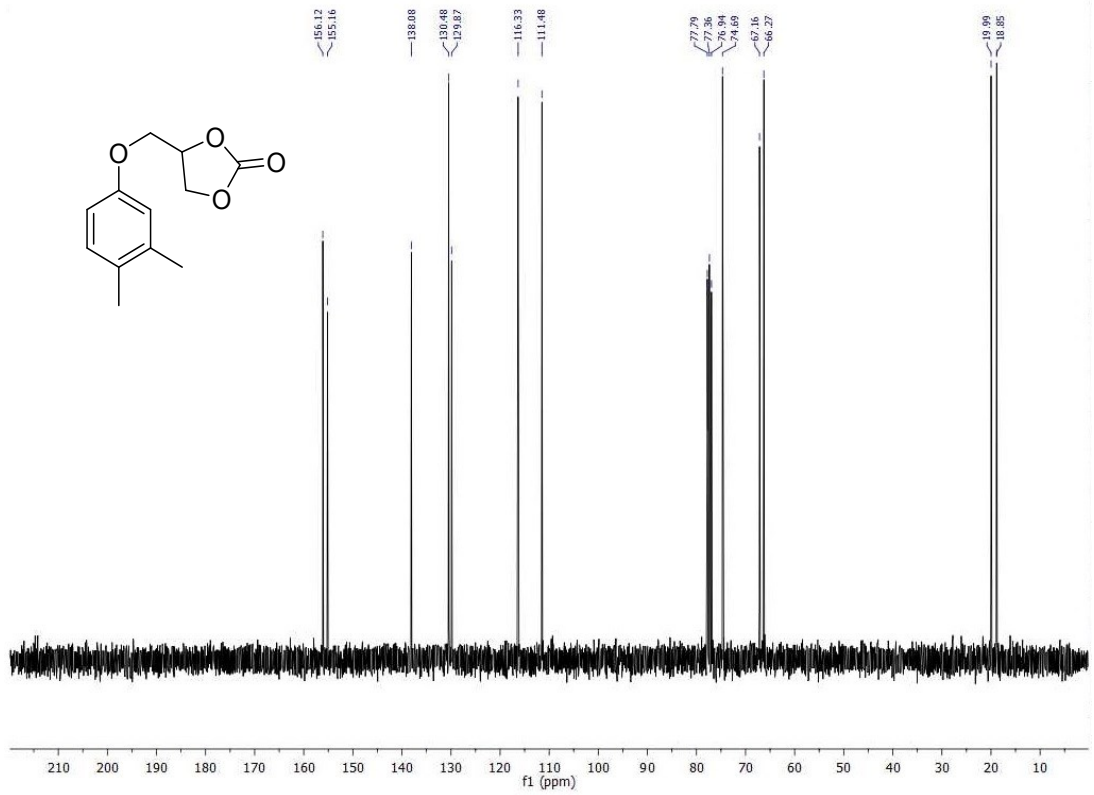
^{1}H NMR ($CDCl_3$, 300 MHz): δ (ppm): 1.28-1.34 (m, 2H), 1.42-1.46 (m, 2H), 1.71-1.77 (m, 4H), 4.59 (s, 2H). ^{13}C NMR (75 MHz, $CDCl_3$), δ (ppm): 18.9, 26.2, 74.7, 155.2.



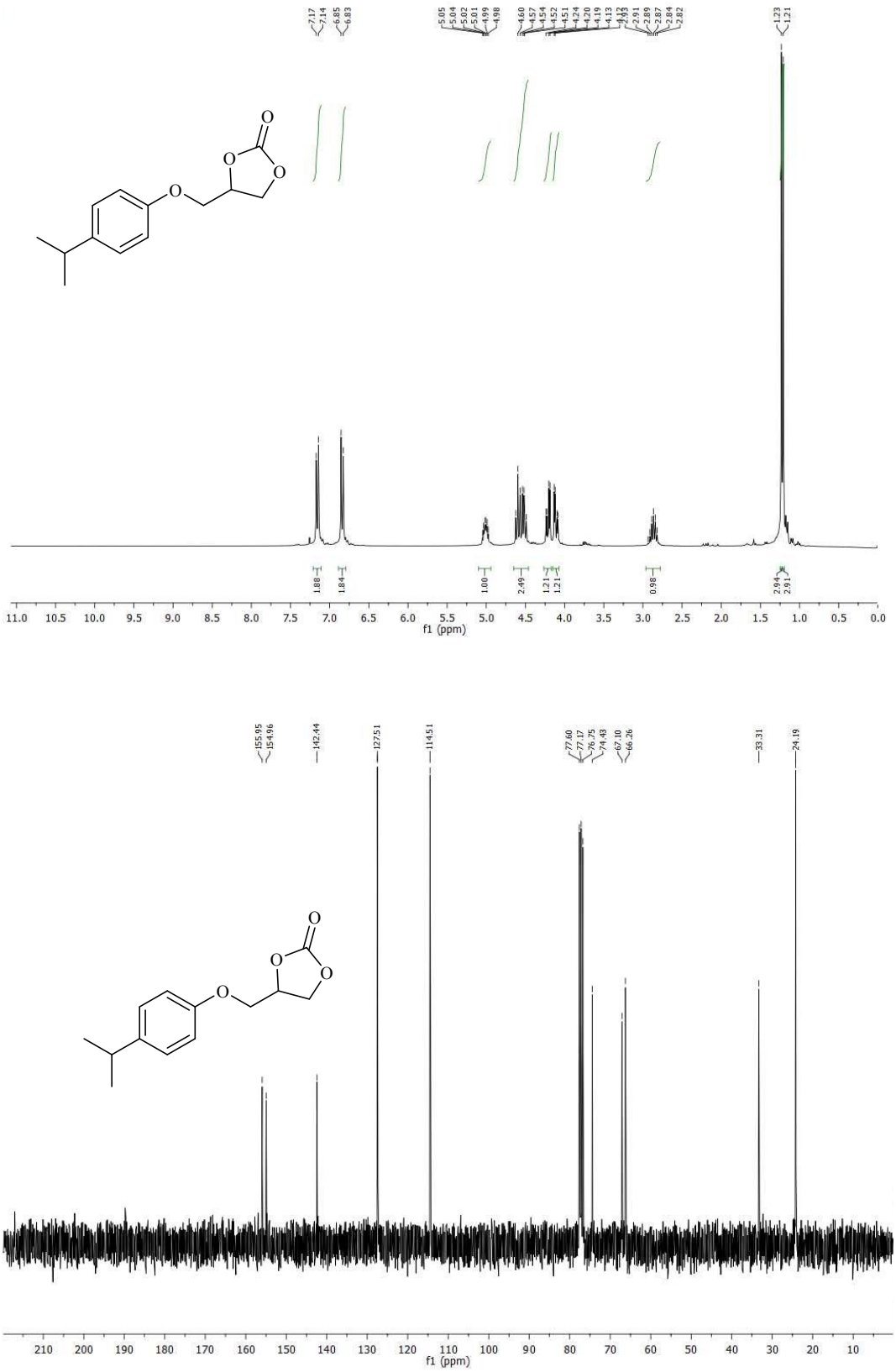


NMR spectrum of (Table 2, Entry 1)

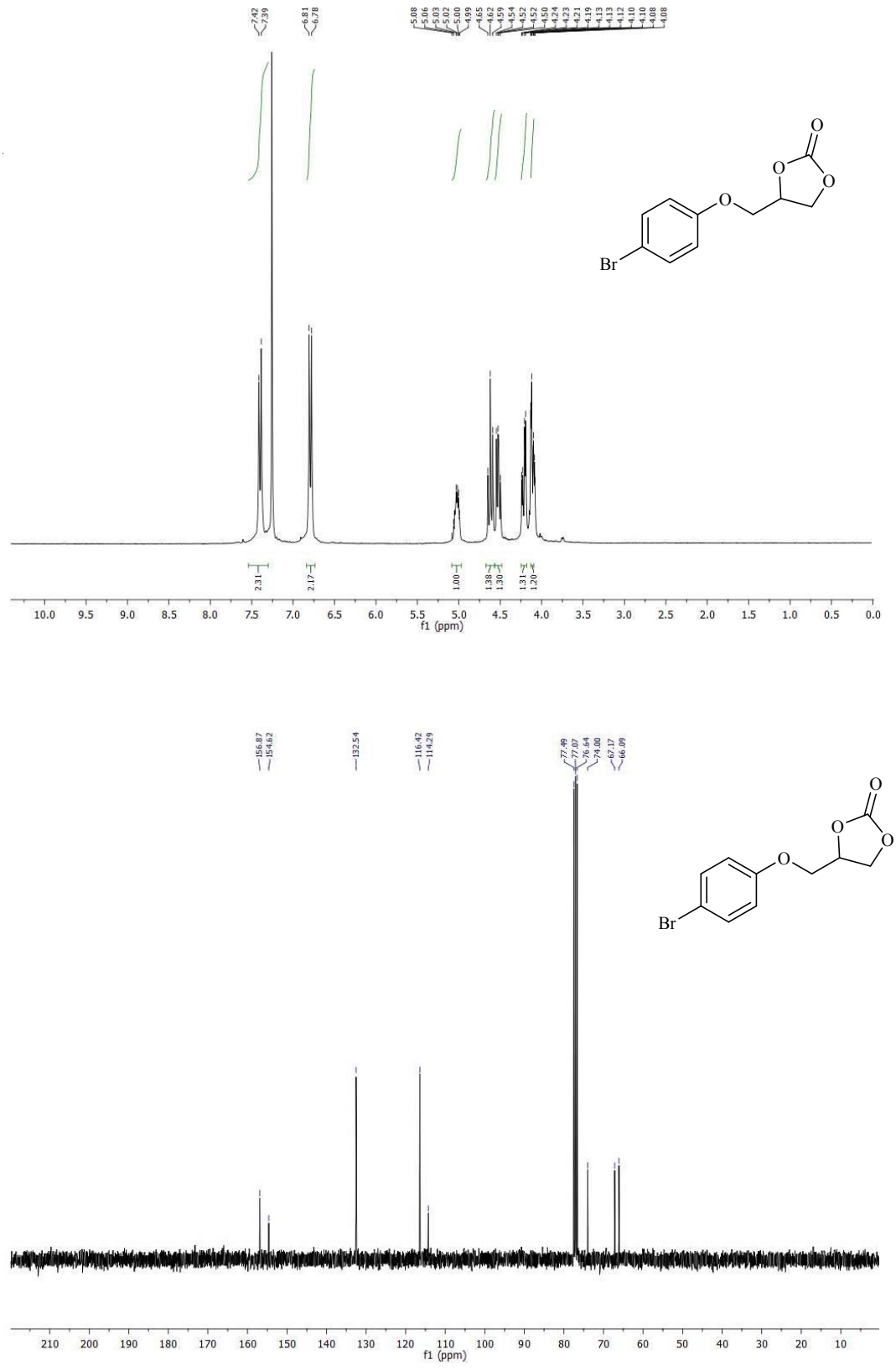




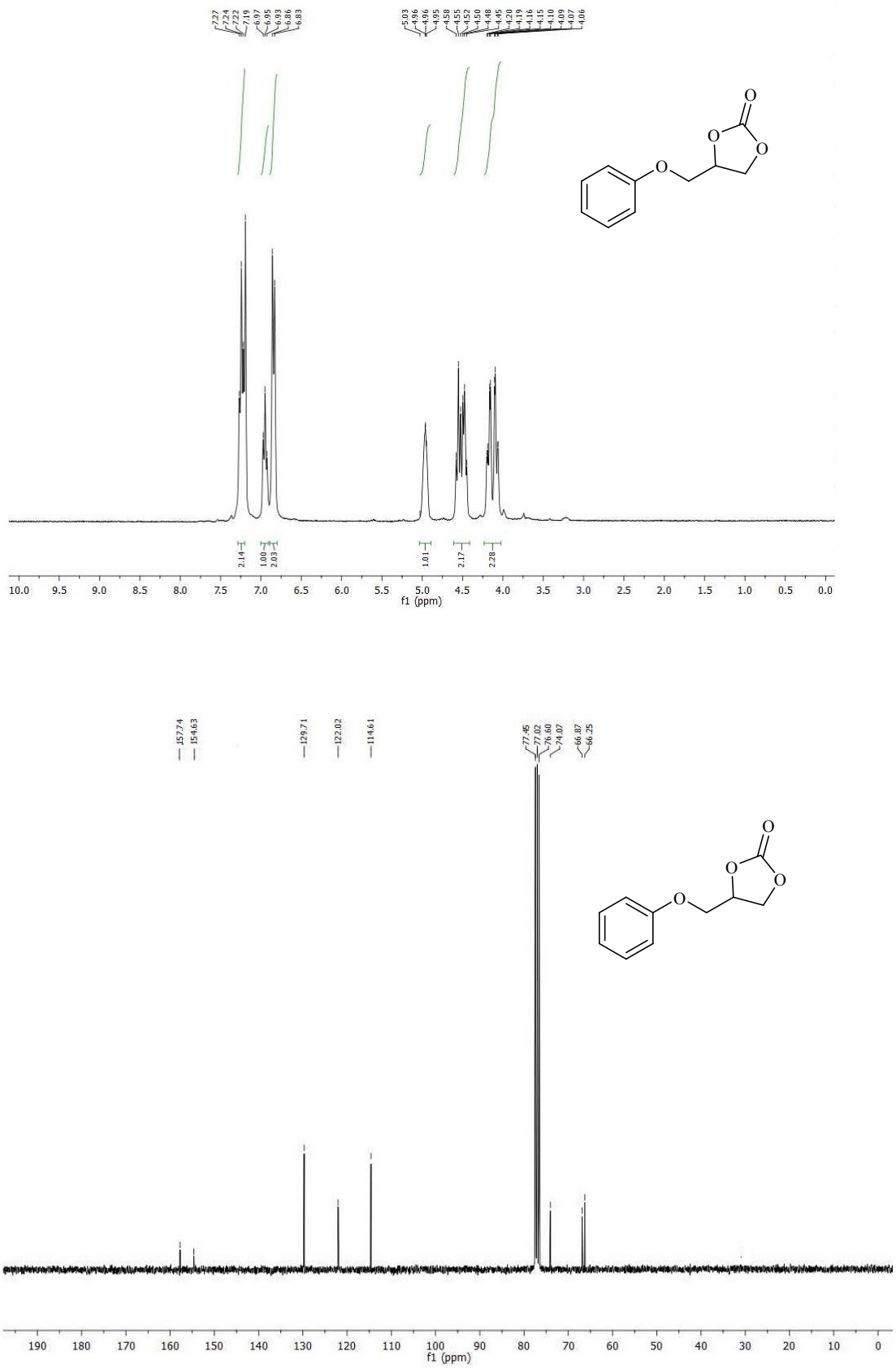
NMR spectrum of (Table 2, Entry 2)



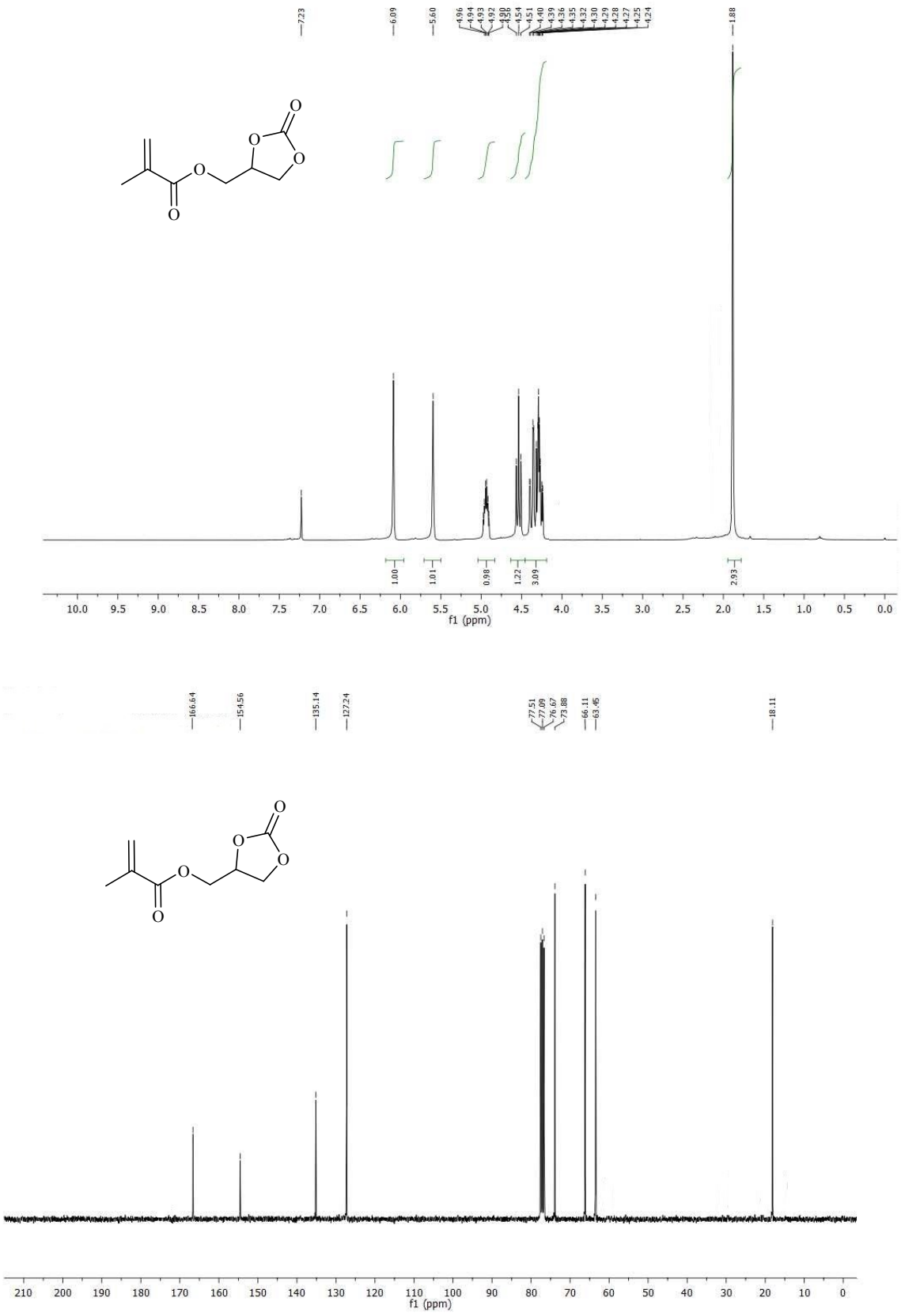
NMR spectrum of (Table 2, Entry 3)



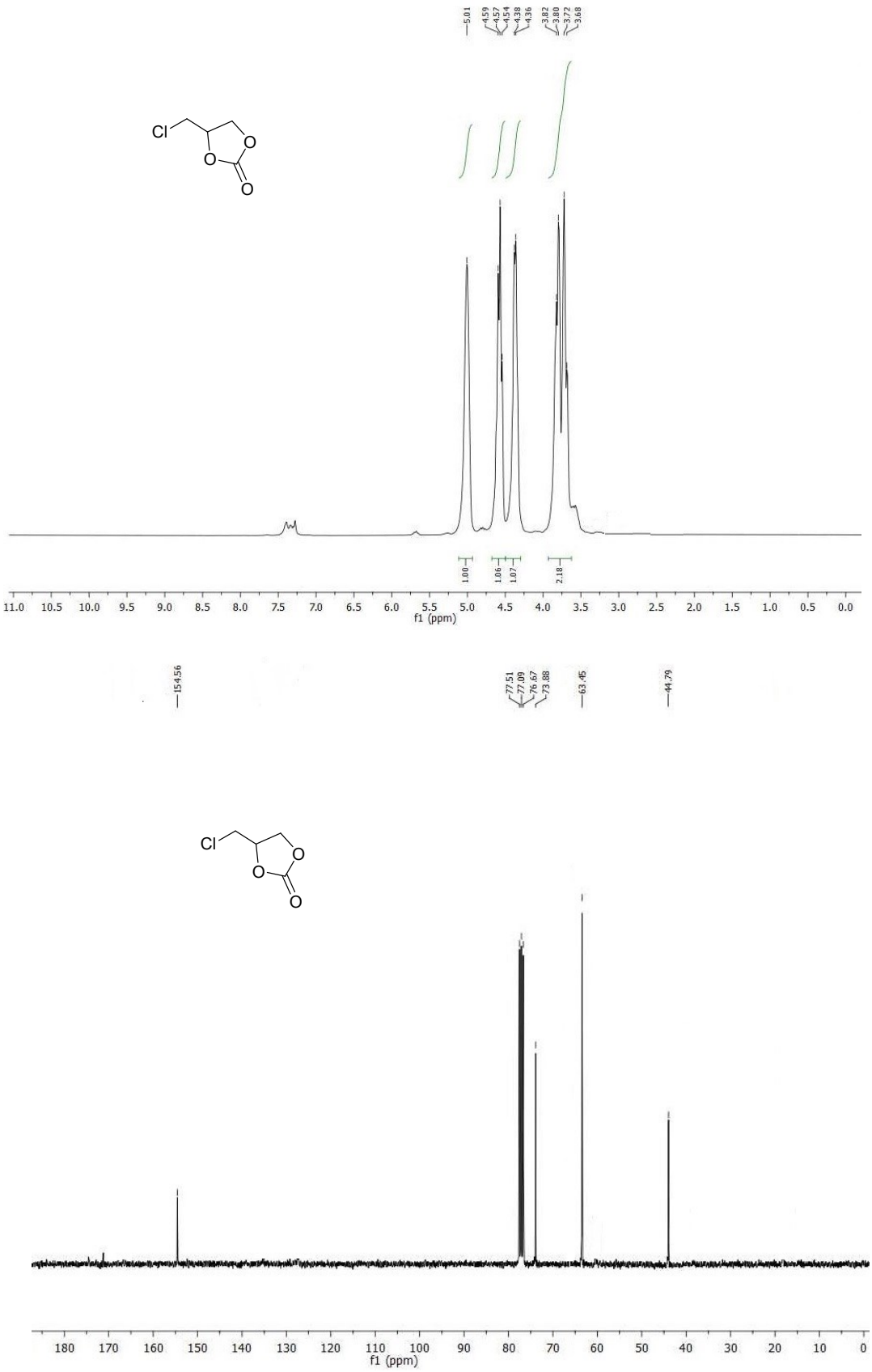
NMR spectrum of (Table 2, Entry 4)



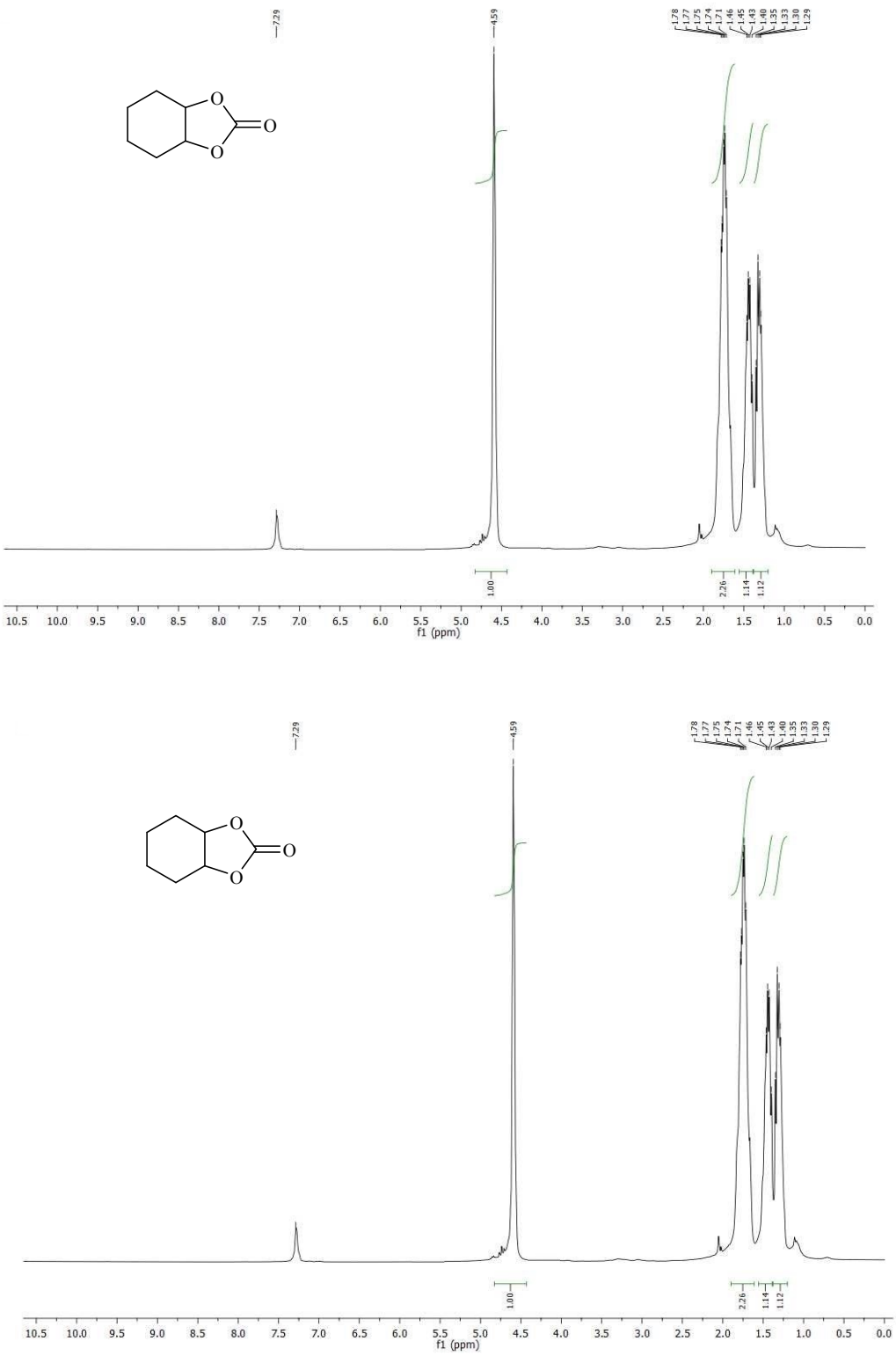
NMR spectrum of (Table 2, Entry 5)



NMR spectrum of (Table 2, Entry 6)



NMR spectrum of (Table 2, Entry 8)



NMR spectrum of (Table 2, Entry 9)