Supporting Information

Chromium Complexes Supported by NNO-Tridentate Ligands: An Unprecedent Activity with the Requirement of a small amount of MAO

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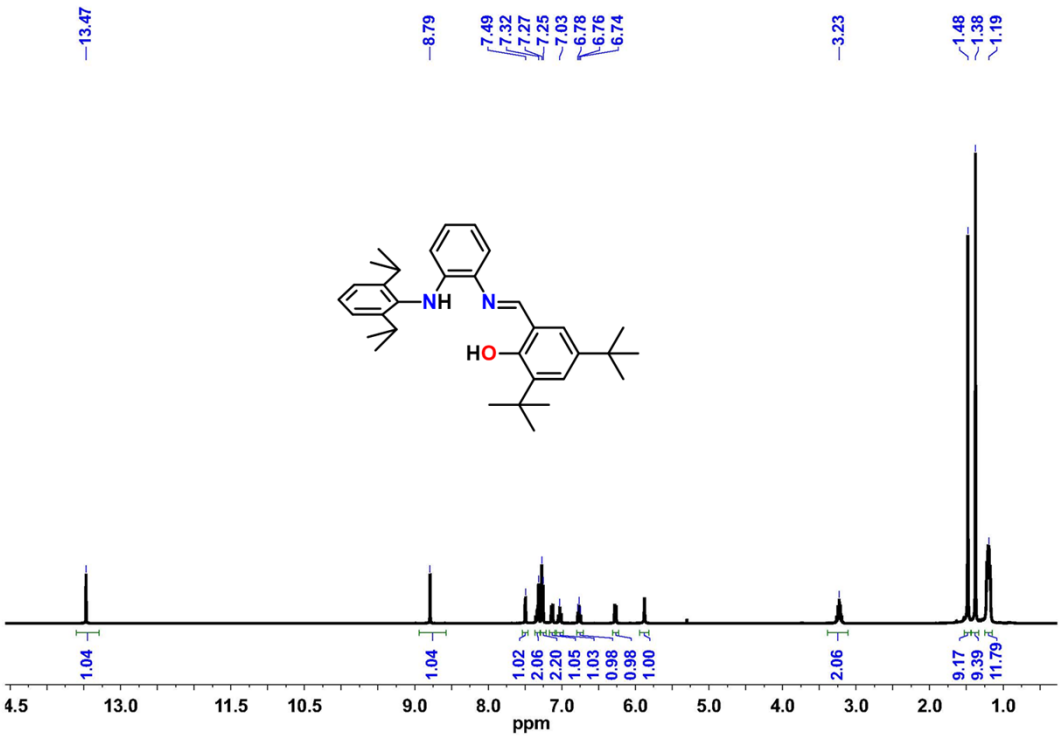


Figure S1. ^{1}H NMR spectrum of **L1** in $CDCl_3$.

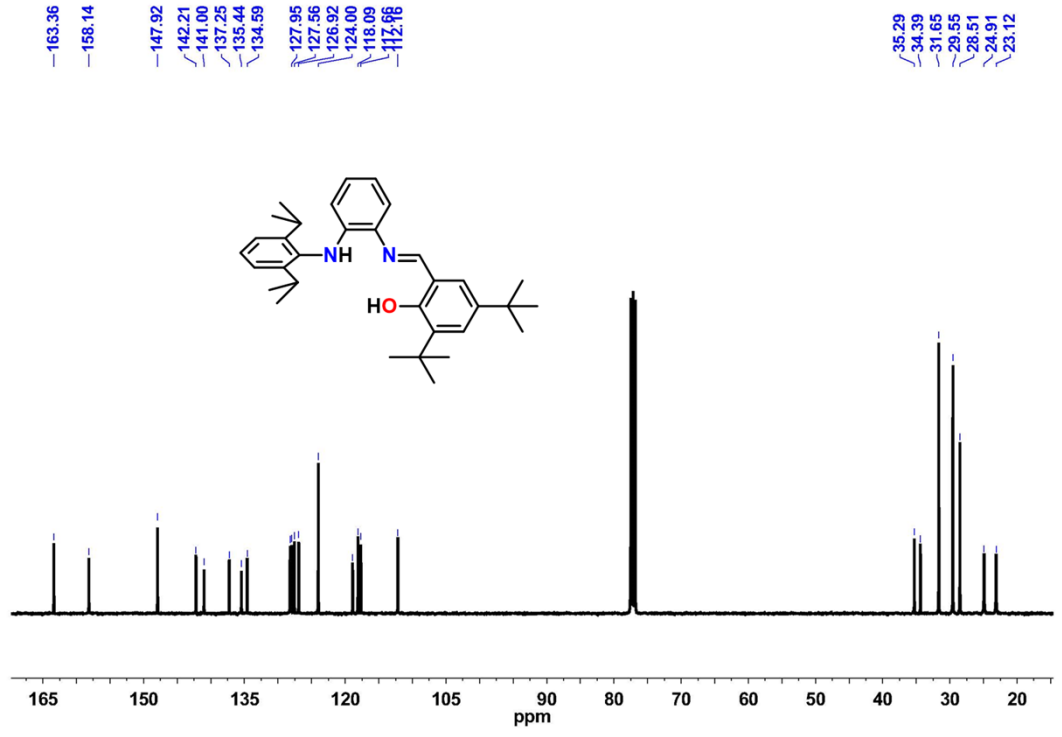


Figure S2. ^{13}C NMR spectrum of **L1** in $CDCl_3$.

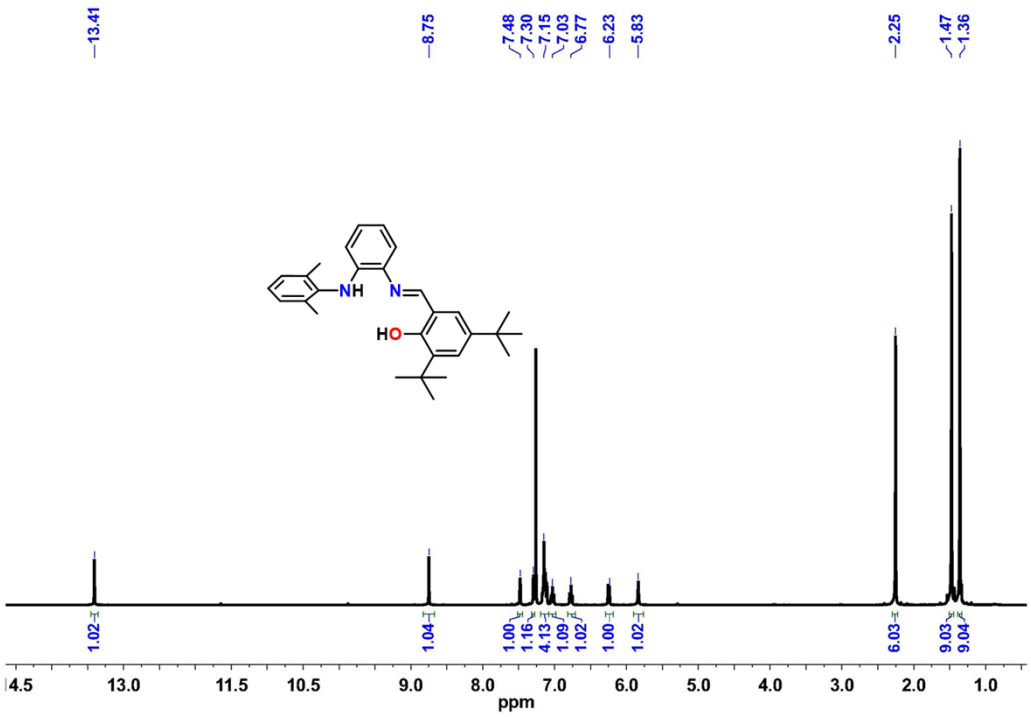


Figure S3. ^{1}H NMR spectrum of **L2** in $CDCl_3$.

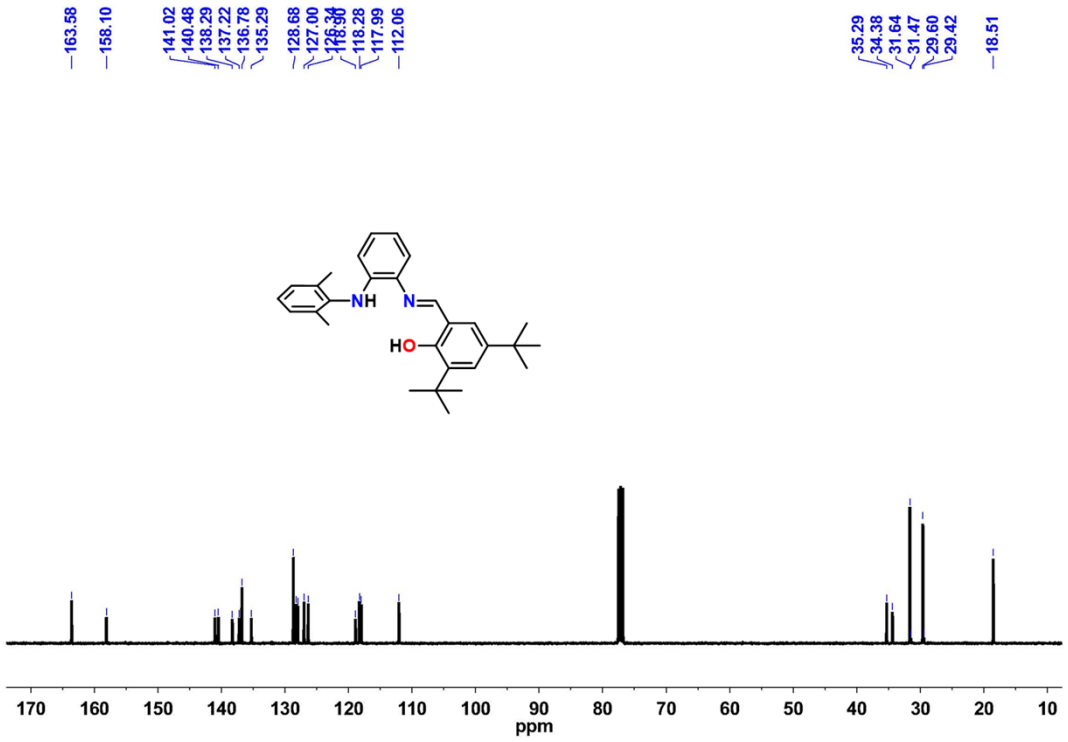


Figure S4. ^{13}C NMR spectrum of **L2** in $CDCl_3$.

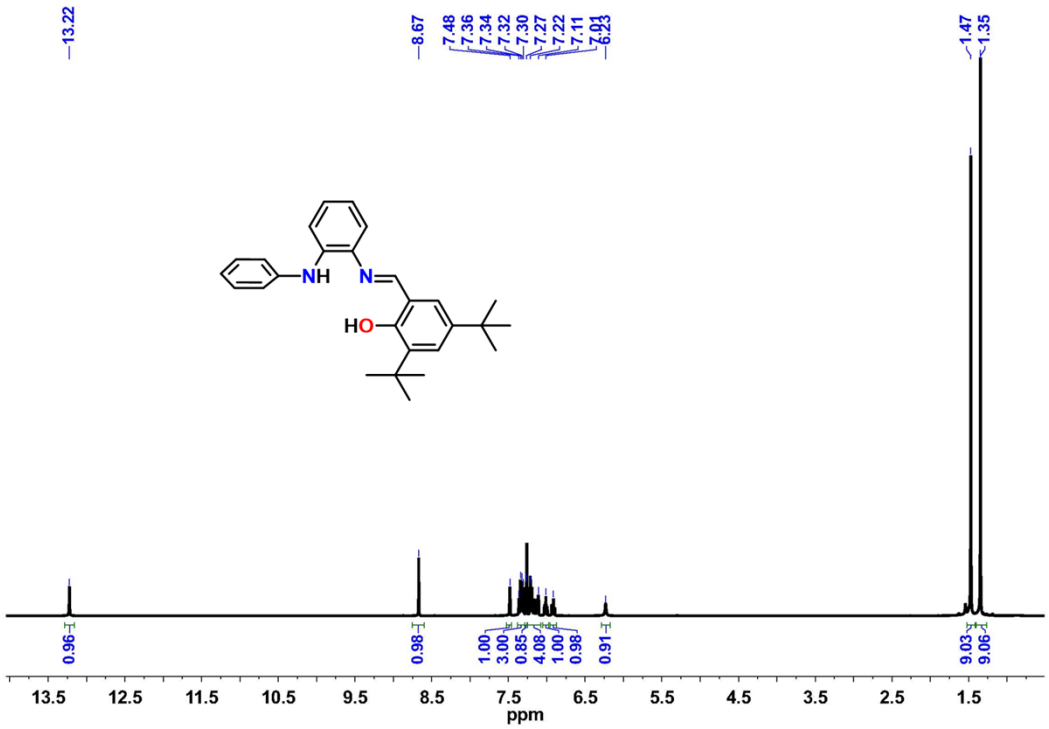


Figure S5. ^{1}H NMR spectrum of **L3** in $CDCl_3$.

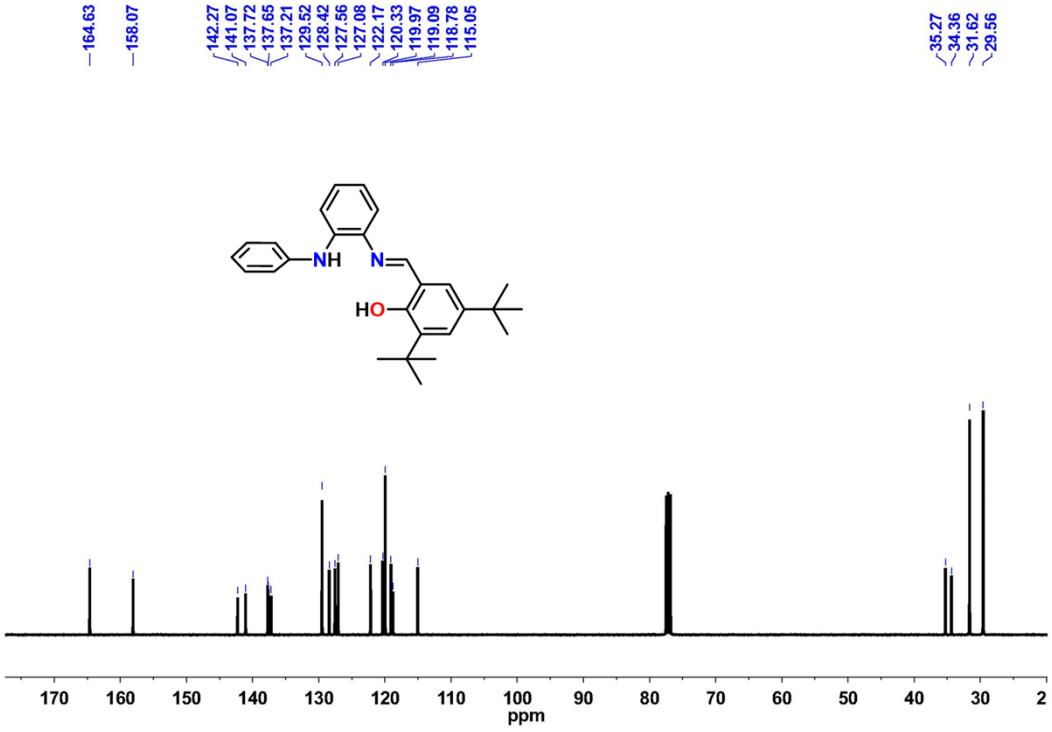


Figure S6. ^{13}C NMR spectrum of **L3** in $CDCl_3$.

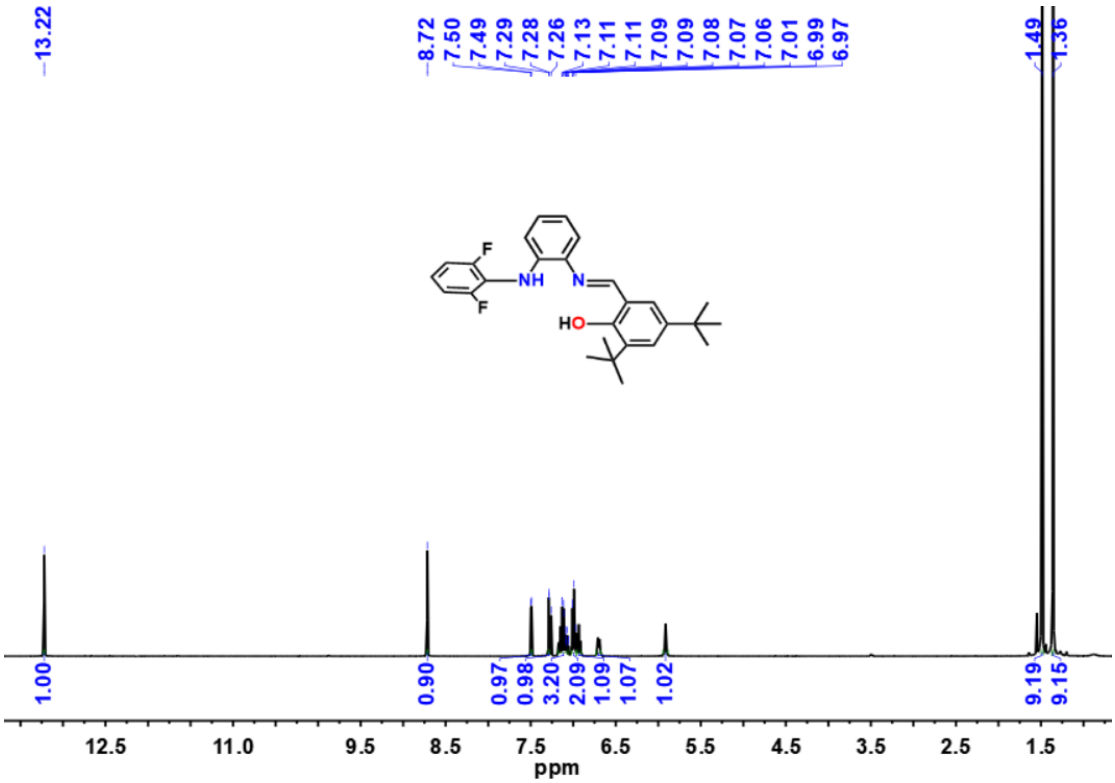


Figure S7. ^{1}H NMR spectrum of **L4** in $CDCl_3$.

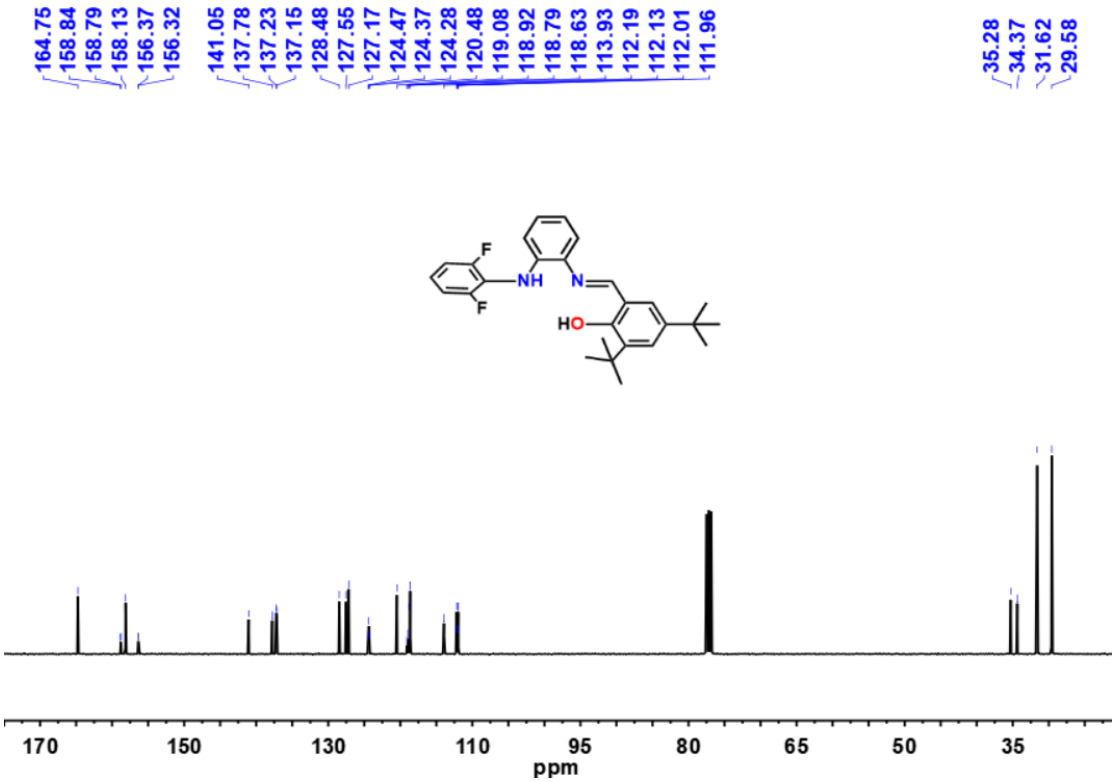


Figure S8. ^{13}C NMR spectrum of **L4** in $CDCl_3$.

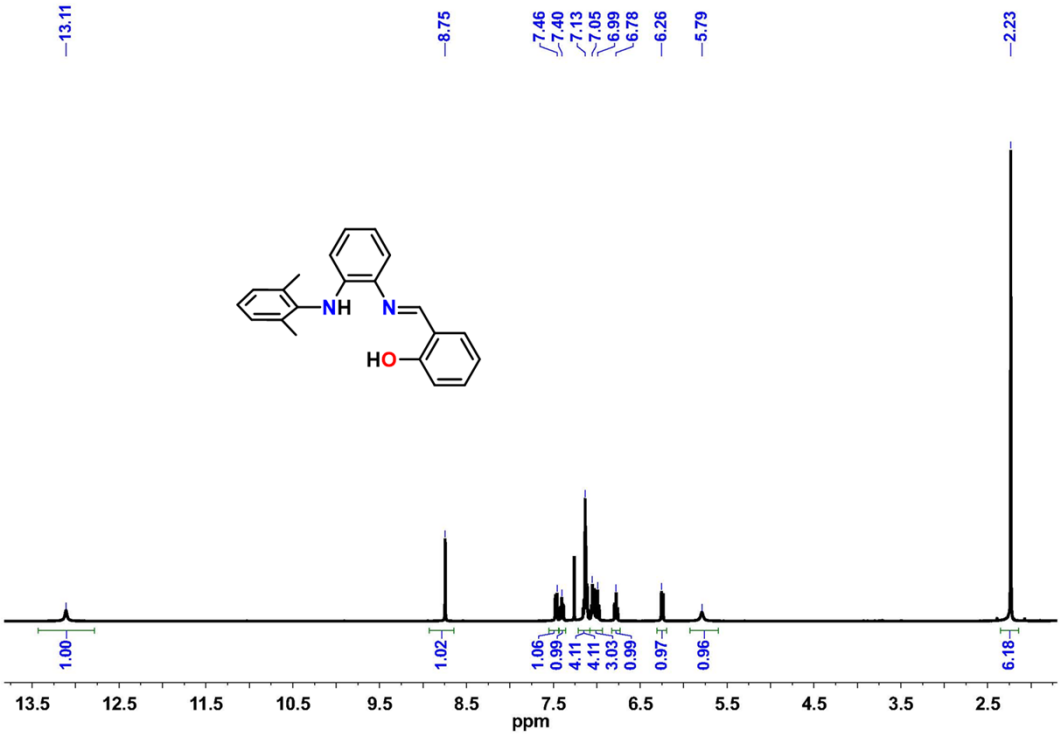


Figure S9. ^{1}H NMR spectrum of **L5** in $CDCl_3$.

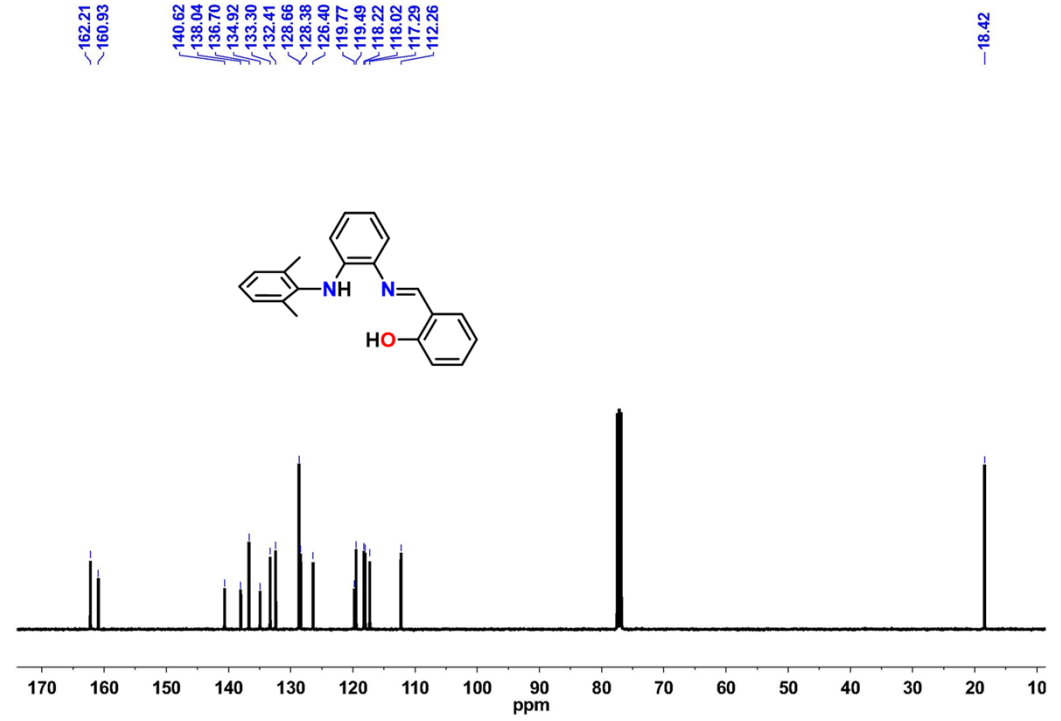


Figure S10. ^{13}C NMR spectrum of **L5** in $CDCl_3$.

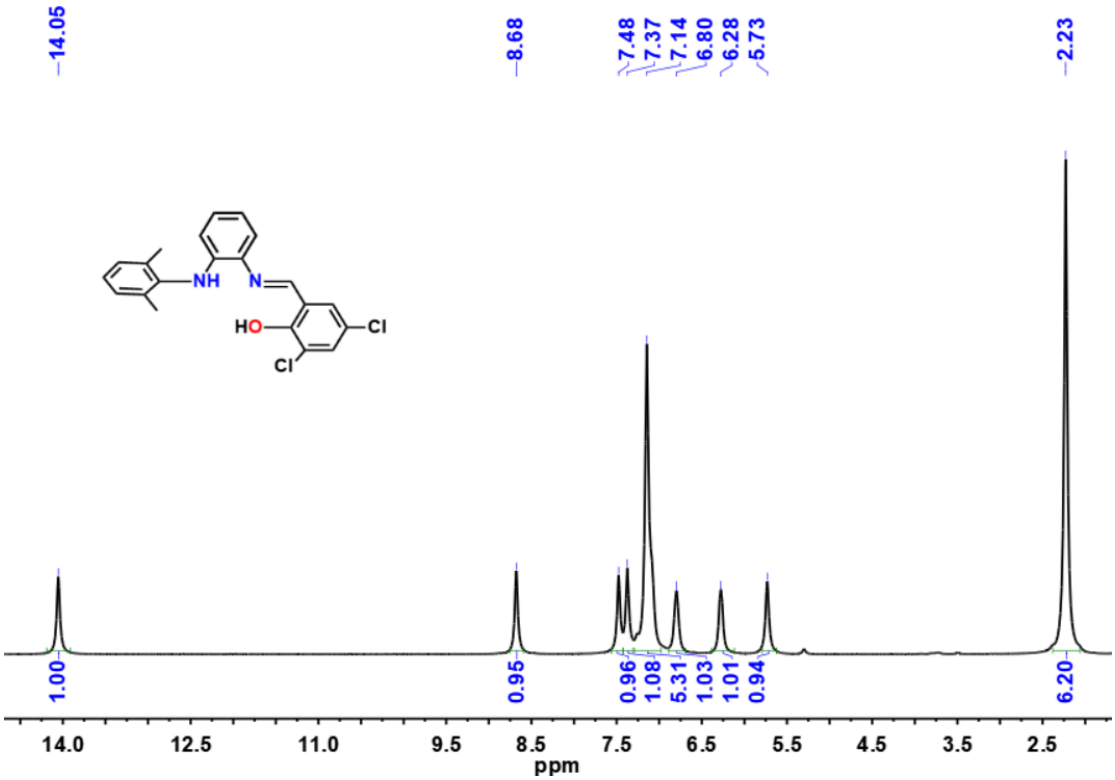


Figure S11. ^{1}H NMR spectrum of **L6** in $CDCl_3$.

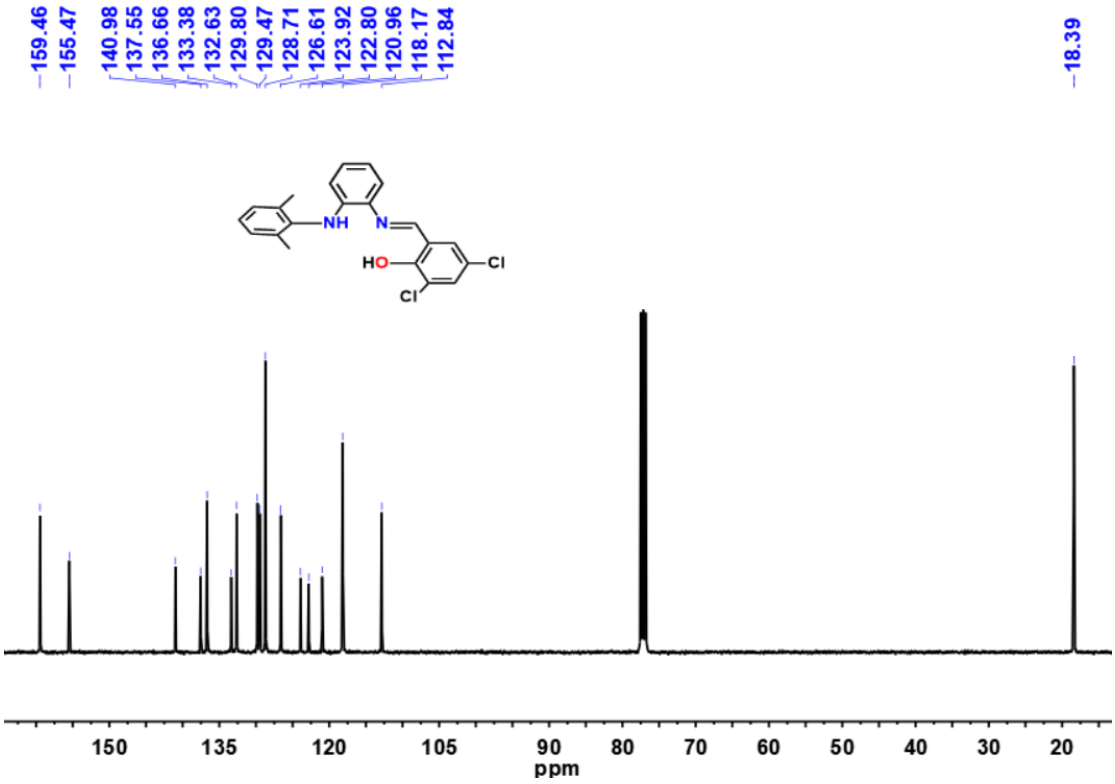


Figure S12. ^{13}C NMR spectrum of **L6** in $CDCl_3$.

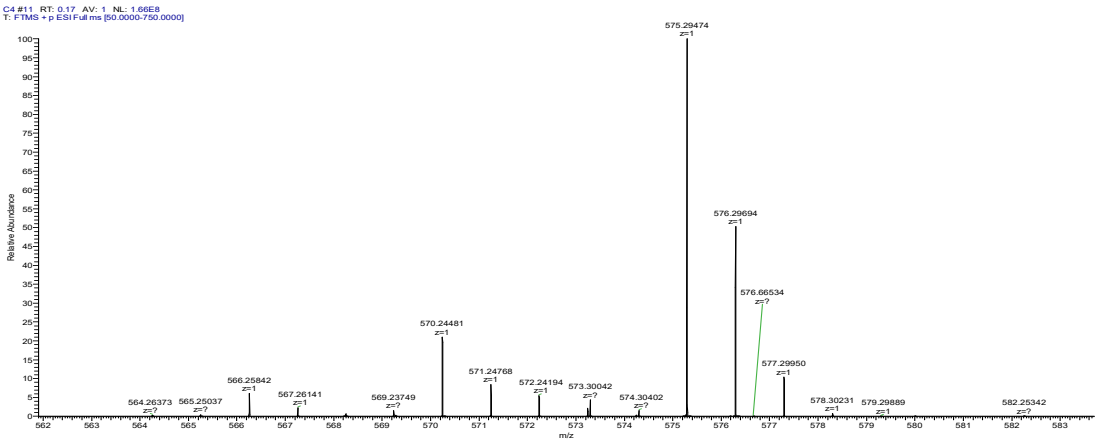


Figure S13. HRMS spectrum of **Cr1**(THF) (m/z 575.27, $[M\text{-}2Cl\text{-}THF+OH+Na]^+$).

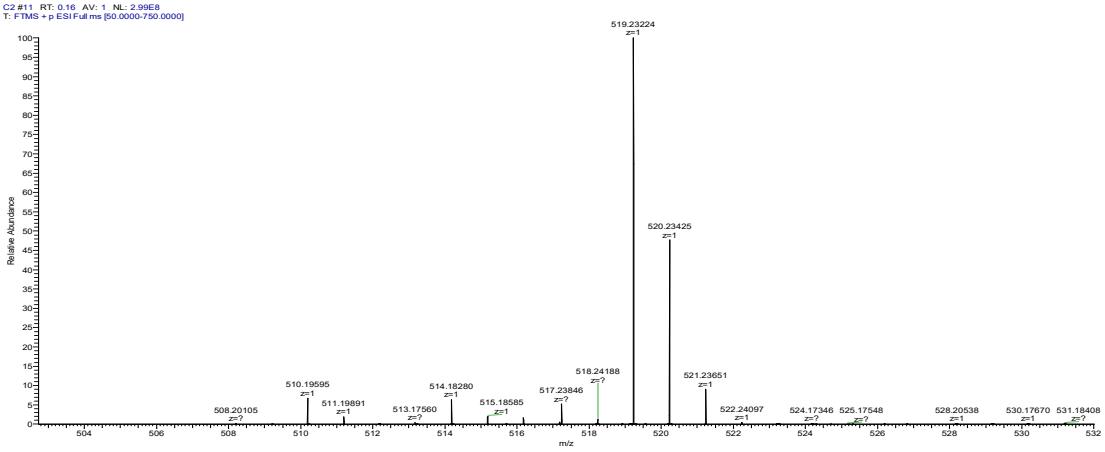


Figure S14. HRMS spectrum of **Cr2**(THF) (m/z 519.21, $[M\text{-}2Cl\text{-}THF+OH+Na]^+$).

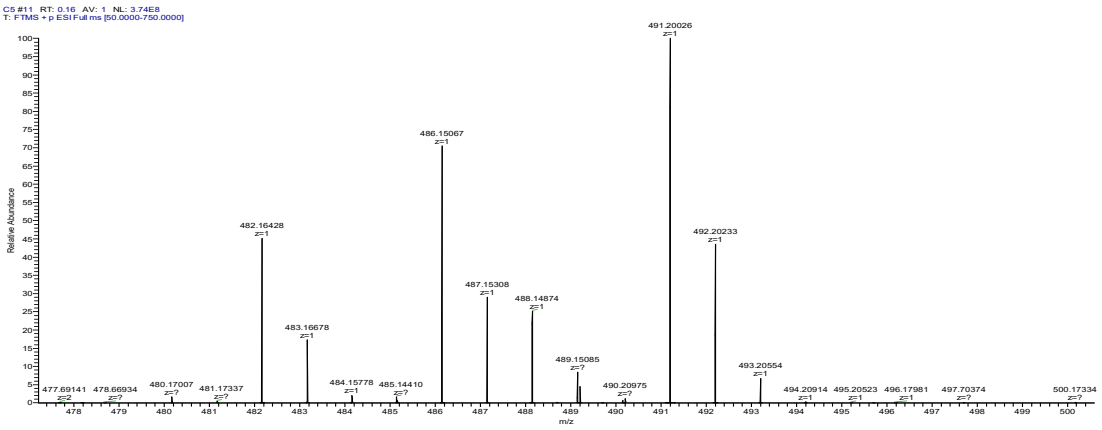


Figure S15. HRMS spectrum of **Cr3**(THF) (m/z 491.18, $[M\text{-}2Cl\text{-}THF+OH+Na]^+$).

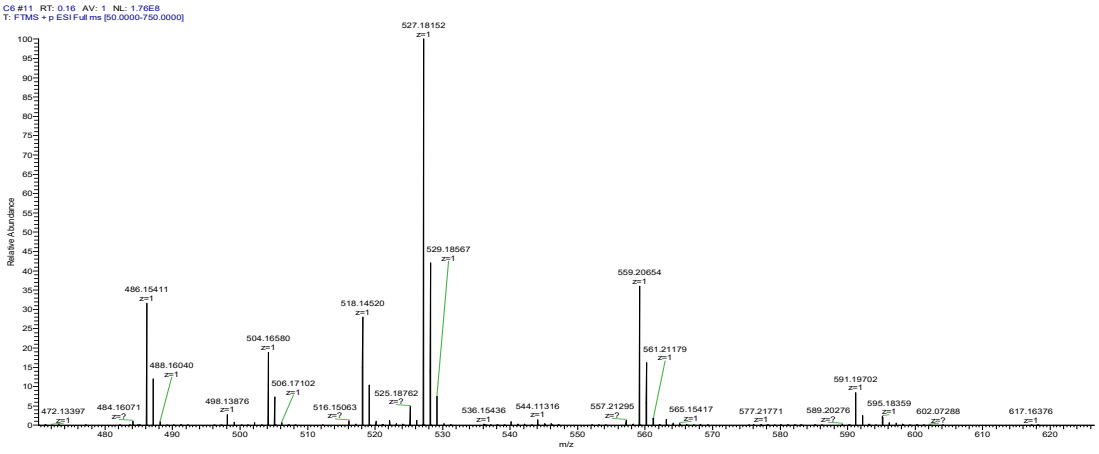


Figure S16. HRMS spectrum of **Cr4**(THF) (m/z 527.16, $[M\text{-}2Cl\text{-}THF+OH+Na]^+$).

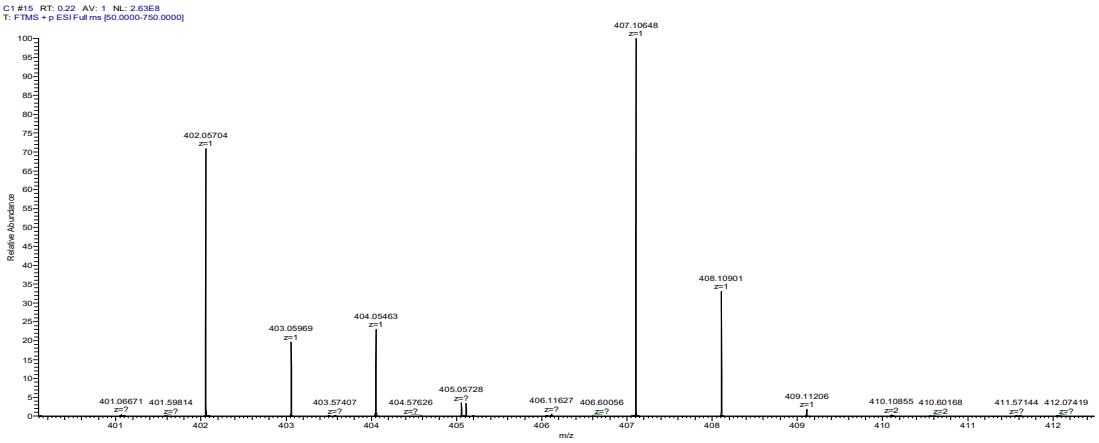


Figure S17. HRMS spectrum of **Cr5**(THF) (m/z 407.08, $[M\text{-}2Cl\text{-}THF+OH+Na]^+$).

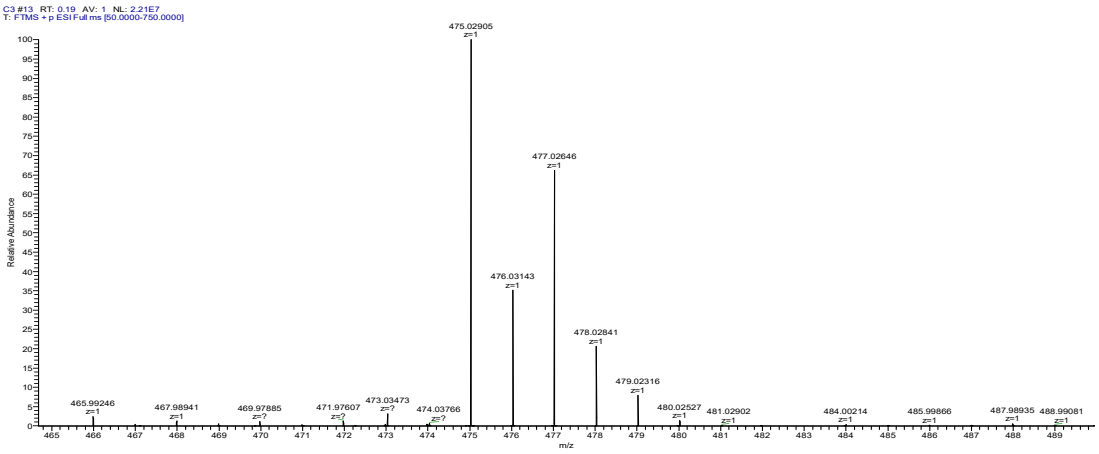
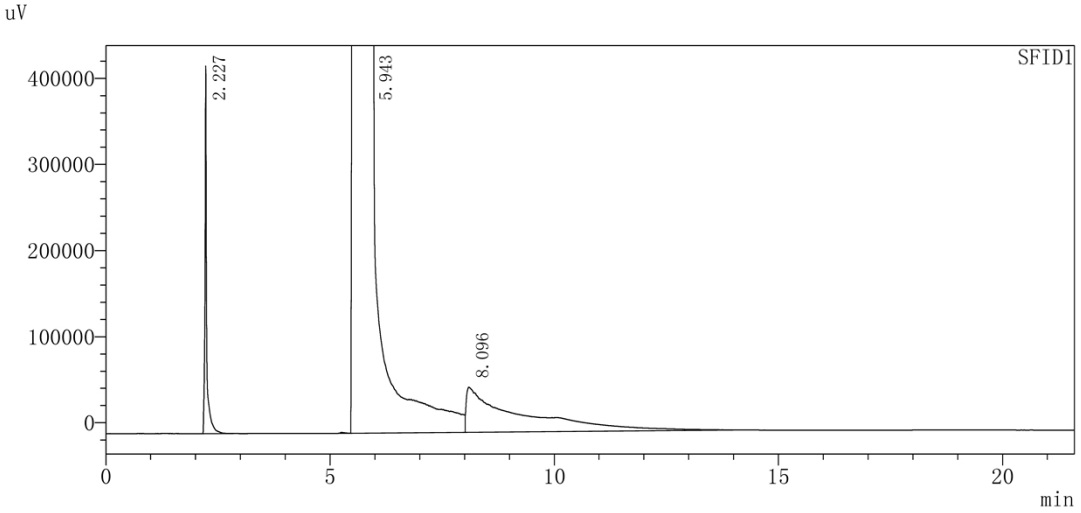


Figure S18. HRMS spectrum of **Cr6**(THF) (m/z 475.01, $[M\text{-}2Cl\text{-}THF+OH+Na]^+$).

〈样品信息〉

样品名	: ET2ALCL-CR2		
样品ID	:		
数据文件名	: MAO-Cr3.gcd		
方法文件名	: fcy-1.gcm		
批处理文件名	:		
样品瓶号	: 1	样品类型	: 未知
进样体积	: 1 uL		
分析日期	: 2022/1/12 0:45:02	分析者	: System Administrator
处理日期	: 2022/1/12 1:11:43	处理者	: System Administrator

〈色谱图〉



〈峰表〉

SFID1

峰号	保留时间	面积	高度	浓度	浓度单位	标记	化合物名
1	2.227	1069715	418452	1.006	%	M	C2H4
2	5.943	100980908	5301357	94.930	%	M	Tol
3	8.096	4323008	52432	4.064	%	V M	C6H5Cl
总计		106373632	5772241				

Figure S19. GC analysis of the liquid fraction obtained from polymerization in Table 1 run 1.

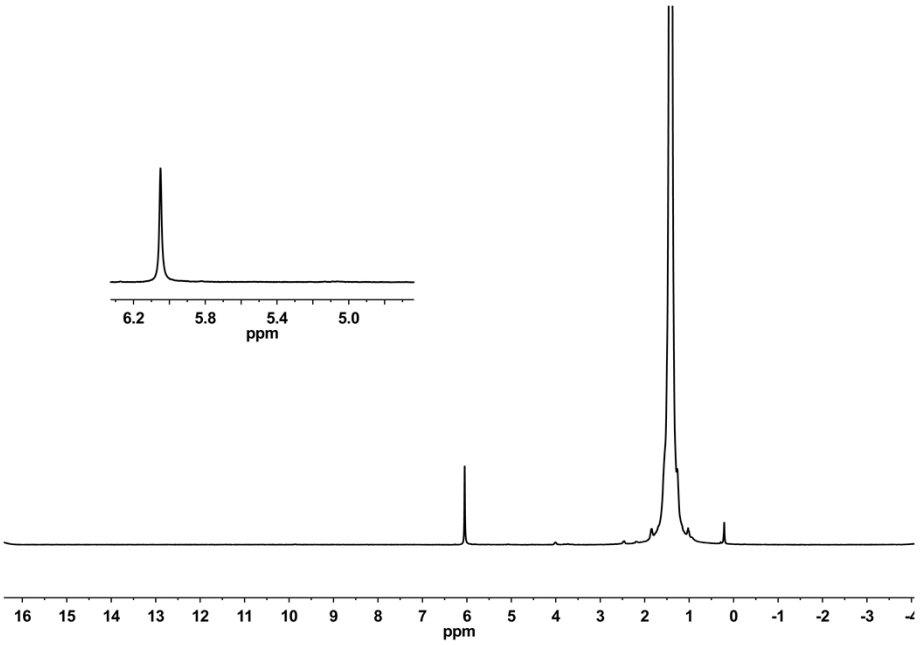


Figure S20. ^{1}H NMR spectrum of polyethylene sample obtained in Table 2 run 10 (120 °C in $C_2D_2Cl_4$).

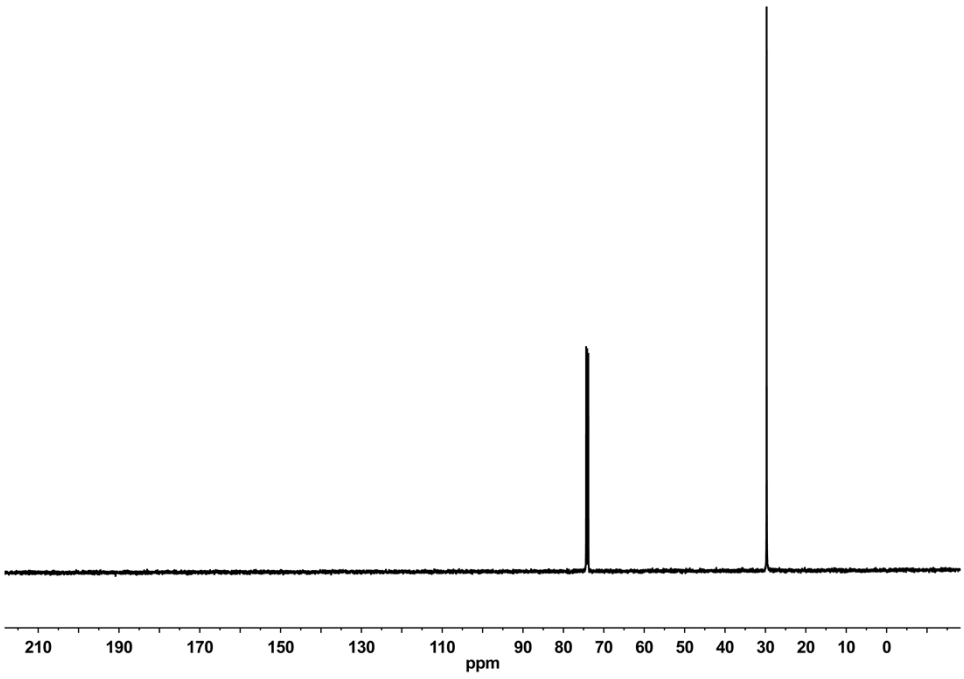


Figure S21. ^{13}C NMR spectrum of polyethylene sample obtained in Table 2 run 10 (120 °C in $C_2D_2Cl_4$).

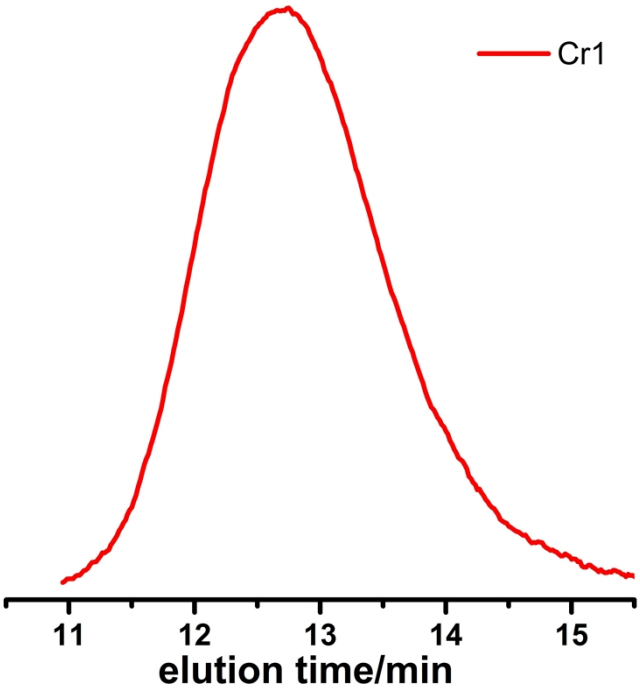


Figure S22. GPC curve of polyethylene obtained in Table 3 run 1 (M_w = 14.4 × 10^4 g·mol^{-1}, $Đ$ = 2.3).

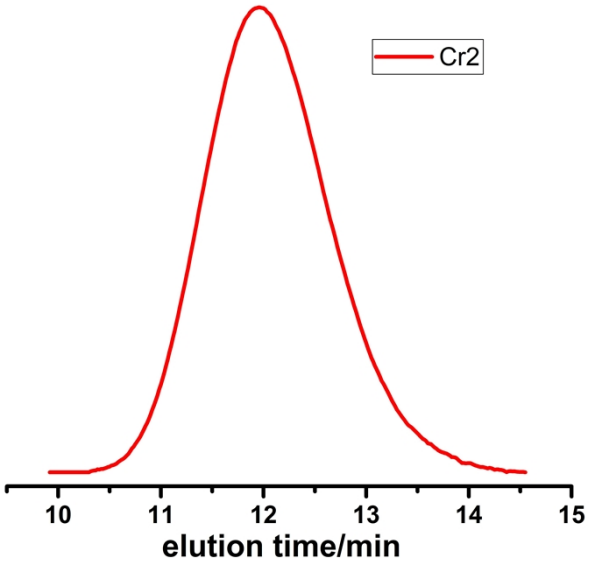


Figure S23. GPC curve of polyethylene obtained in Table 3 run 2 (M_w = 38.9 × 10^4 g·mol^{-1}, $Đ$ = 1.5).

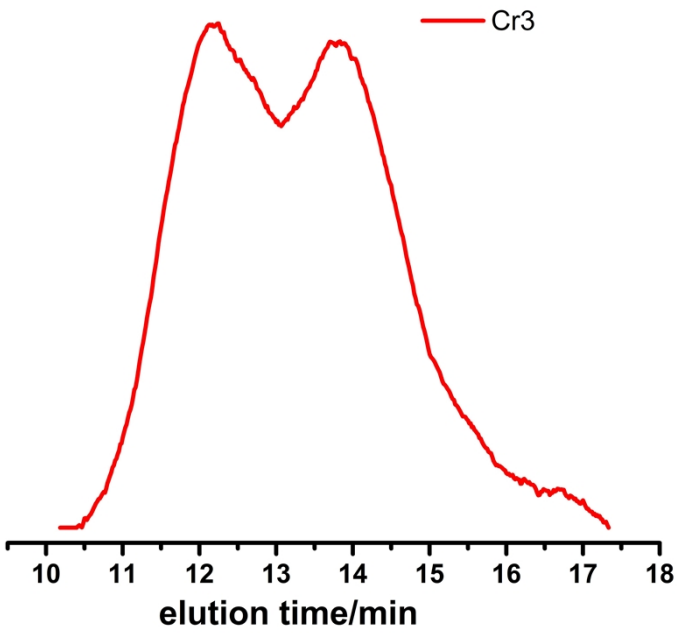


Figure S24. GPC curve of polyethylene obtained in Table 3 run 3 (M_w = 22.3 × 10^4 g·mol^{-1}, $Đ$ = 4.2).

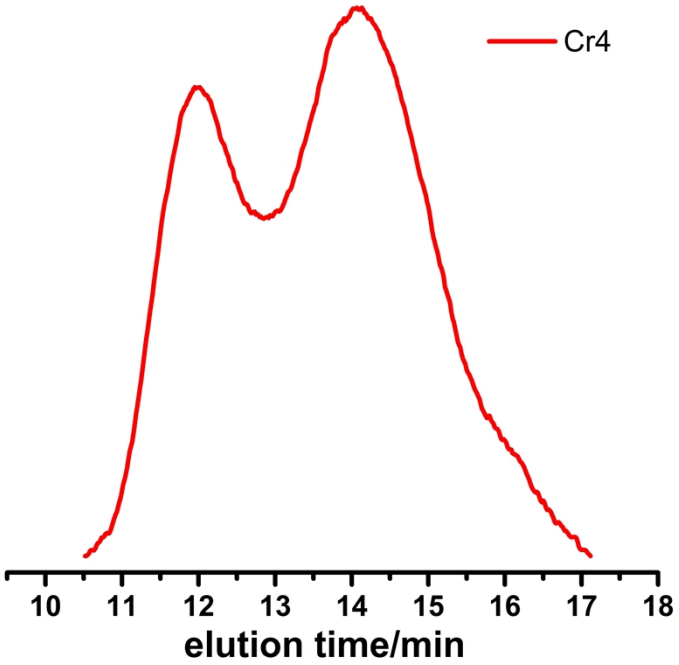


Figure S25. GPC curve of polyethylene obtained in Table 3 run 4 (M_w = 18.0 × 10^4 g·mol^{-1}, $Đ$ = 10).

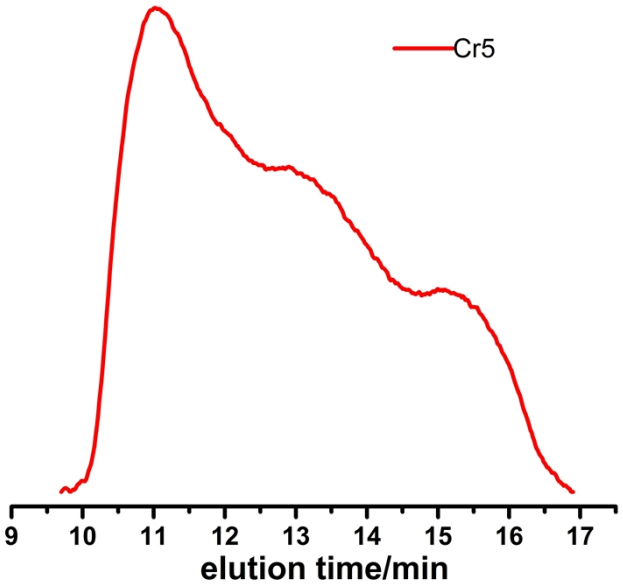


Figure S26. GPC curve of polyethylene obtained in Table 3 run 5 (M_w = 45.6 × 10^4 g·mol^{-1}, $Đ$ = 19).

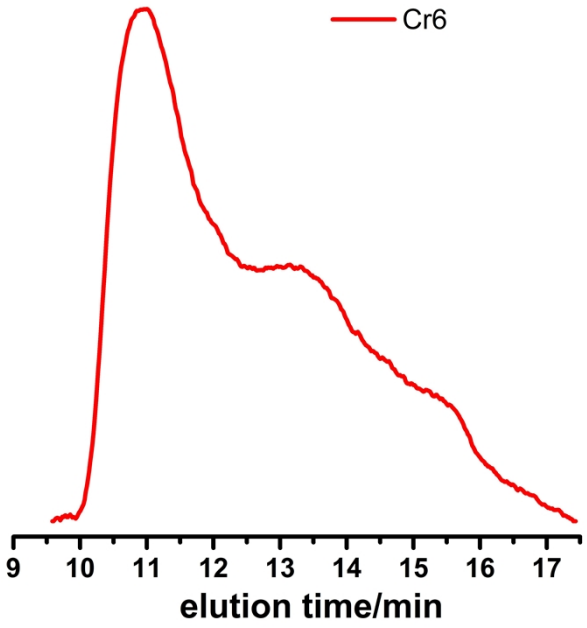


Figure S27. GPC curve of polyethylene obtained in Table 3 run 6 (M_w = 53.4 × 10^4 g·mol^{-1}, $Đ$ = 19).

Table S1. Crystal data and structure refinement for **Cr2**(THF) and **Cr4**(THF).

Complex	**Cr2**(THF)	**Cr4**(THF)
Empirical formula	$C_{33}H_{43}Cl_2CrN_2O_2$	$C_{31}H_{37}Cl_2CrF_2N_2O_2$
Formula weight	622.59	630.52
Temperature / K	193	213
Crystal system	triclinic	monoclinic
Space group	P-1	$P2_1/c$
a / Å, b / Å, c / Å	16.326(3), 16.389(3), 16.464(3)	14.4764(4), 14.5398(4), 15.5208(4)
α/°, β/°, γ/°	70.953(7), 89.935(10), 71.859(7)	90, 109.5390(10), 90
Volume / Å^3	3932.1(13)	3078.75(15)
Z	4	4
ρ_{calc} / mg mm^{-3}	1.052	1.360
μ / mm^{-1}	2.591	3.395
F(000)	1316.0	1316.0
Crystal size / mm^3	0.05 × 0.03 × 0.03	0.07 × 0.07 × 0.05
2Θ range for data collection	5.866 to 110.332	8.222 to 110.554
Index ranges	$-19 \le h \le 17$, $-20 \le k \le 19$, $-20 \le l \le 20$	$-17 \le h \le 17$, $-17 \le k \le 11$, $-18 \le l \le 18$
Reflections collected	56466	26800
Independent reflections	14951 [R_{int} = 0.0787]	5858 [R_{int} = 0.0458]
Data/restraints/parameters	14951/0/737	5858/18/367
Goodness-of-fit on F^2	1.054	1.072
Final R indexes [I>2σ (I)]	R_1 = 0.0736, wR_2 = 0.2105	R_1 = 0.0518, wR_2 = 0.1382
Final R indexes [all data]	R_1 = 0.1177, wR_2 = 0.2400	R_1 = 0.0664, wR_2 = 0.1507
Largest diff. peak/hole / e Å^{-3}	0.35/-0.67	0.78/-0.56