

Electronic Supplementary Information

Molecular sieve mediated sequential Knoevenagel condensation/decarboxylative Michael addition reaction: an efficient and mild condition for the synthesis of 3,3-disubstituted oxindoles with all carbon quaternary center

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1. X-Ray Crystallographic Data of 4g and 5g

(a) X-Ray Crystallographic Data of 4g

Table 1. Crystal data and structure refinement for 4g.

Identification code	a18075	
Empirical formula	C ₁₉ H ₁₂ Br N ₃ O ₂	
Formula weight	394.23	
Temperature	296(2) K	
Wavelength	0.71073 Å	
Crystal system	Triclinic	
Space group	P -1	
Unit cell dimensions	a = 8.9365(8) Å b = 10.0229(9) Å c = 10.5846(10) Å	$\alpha = 72.6120(10)^\circ$. $\beta = 68.3510(10)^\circ$. $\gamma = 78.5860(10)^\circ$.
Volume	836.80(13) Å ³	
Z	2	
Density (calculated)	1.565 Mg/m ³	
Absorption coefficient	2.474 mm ⁻¹	
F(000)	396	
Crystal size	0.28 x 0.25 x 0.11 mm ³	
Theta range for data collection	2.14 to 25.08°.	
Index ranges	-10 ≤ h ≤ 9, -11 ≤ k ≤ 11, -12 ≤ l ≤ 12	
Reflections collected	7437	
Independent reflections	2952 [R(int) = 0.0223]	
Completeness to theta = 25.08°	99.0 %	
Absorption correction	multi-scan	
Max. and min. transmission	0.7726 and 0.5442	
Refinement method	Full-matrix least-squares on F ²	
Data / restraints / parameters	2952 / 0 / 226	
Goodness-of-fit on F ²	1.037	
Final R indices [I > 2σ(I)]	R1 = 0.0283, wR2 = 0.0624	
R indices (all data)	R1 = 0.0380, wR2 = 0.0658	
Largest diff. peak and hole	0.202 and -0.364 e.Å ⁻³	

Table 2. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for a18075. $U(\text{eq})$ is defined as one third of the trace of the orthogonalized U^{ij} tensor.

	x	y	z	U(eq)
C(1)	13238(2)	2024(2)	5720(2)	37(1)
C(2)	13644(2)	703(2)	6457(2)	41(1)
C(3)	12449(2)	-95(2)	7475(2)	39(1)
C(4)	10861(2)	471(2)	7713(2)	30(1)
C(5)	10459(2)	1803(2)	6953(2)	27(1)
C(6)	11647(2)	2599(2)	5951(2)	31(1)
C(7)	8646(2)	2116(2)	7454(2)	27(1)
C(8)	8118(2)	816(2)	8699(2)	30(1)
C(9)	7876(2)	2070(2)	6357(2)	32(1)
C(10)	8068(3)	660(3)	6134(2)	39(1)
C(11)	8530(3)	3101(2)	5014(2)	38(1)
C(12)	7985(2)	3502(2)	7889(2)	30(1)
C(13)	8367(2)	3579(2)	9138(2)	29(1)
C(14)	7746(2)	4850(2)	9693(2)	30(1)
C(15)	7039(3)	6058(2)	8985(2)	45(1)
C(16)	6490(3)	7215(2)	9543(3)	53(1)
C(17)	6624(3)	7180(2)	10800(2)	47(1)
C(18)	7314(3)	5992(3)	11511(2)	49(1)
C(19)	7884(3)	4829(2)	10964(2)	40(1)
N(1)	9059(3)	3919(2)	4014(2)	58(1)
N(2)	8151(3)	-444(2)	6026(2)	63(1)
N(3)	9454(2)	-100(2)	8701(2)	33(1)
O(1)	6736(2)	656(2)	9467(2)	44(1)
O(2)	9137(2)	2590(1)	9697(2)	42(1)
Br(1)	14892(1)	3118(1)	4329(1)	60(1)

Table 3. Bond lengths [\AA] and angles [$^\circ$] for a18075.

C(1)-C(2)	1.376(3)
C(1)-C(6)	1.384(3)
C(1)-Br(1)	1.904(2)
C(2)-C(3)	1.384(3)
C(2)-H(2)	0.9300
C(3)-C(4)	1.379(3)
C(3)-H(3)	0.9300
C(4)-C(5)	1.392(3)
C(4)-N(3)	1.400(2)
C(5)-C(6)	1.374(3)
C(5)-C(7)	1.507(3)
C(6)-H(6)	0.9300
C(7)-C(12)	1.532(3)
C(7)-C(8)	1.554(3)
C(7)-C(9)	1.567(3)
C(8)-O(1)	1.213(2)
C(8)-N(3)	1.354(2)
C(9)-C(10)	1.469(3)
C(9)-C(11)	1.476(3)
C(9)-H(9)	0.9800
C(10)-N(2)	1.131(3)
C(11)-N(1)	1.133(3)
C(12)-C(13)	1.509(3)
C(12)-H(12A)	0.9700
C(12)-H(12B)	0.9700
C(13)-O(2)	1.218(2)
C(13)-C(14)	1.484(3)
C(14)-C(15)	1.389(3)
C(14)-C(19)	1.390(3)
C(15)-C(16)	1.380(3)
C(15)-H(15)	0.9300
C(16)-C(17)	1.369(3)
C(16)-H(16)	0.9300
C(17)-C(18)	1.370(3)
C(17)-H(17)	0.9300
C(18)-C(19)	1.380(3)

C(18)-H(18)	0.9300
C(19)-H(19)	0.9300
N(3)-H(3')	0.8901
C(2)-C(1)-C(6)	122.14(19)
C(2)-C(1)-Br(1)	119.88(15)
C(6)-C(1)-Br(1)	117.98(16)
C(1)-C(2)-C(3)	120.21(19)
C(1)-C(2)-H(2)	119.9
C(3)-C(2)-H(2)	119.9
C(4)-C(3)-C(2)	118.03(19)
C(4)-C(3)-H(3)	121.0
C(2)-C(3)-H(3)	121.0
C(3)-C(4)-C(5)	121.41(18)
C(3)-C(4)-N(3)	128.93(18)
C(5)-C(4)-N(3)	109.64(16)
C(6)-C(5)-C(4)	120.53(18)
C(6)-C(5)-C(7)	130.84(17)
C(4)-C(5)-C(7)	108.62(16)
C(5)-C(6)-C(1)	117.68(19)
C(5)-C(6)-H(6)	121.2
C(1)-C(6)-H(6)	121.2
C(5)-C(7)-C(12)	116.44(15)
C(5)-C(7)-C(8)	101.87(14)
C(12)-C(7)-C(8)	112.28(15)
C(5)-C(7)-C(9)	112.38(15)
C(12)-C(7)-C(9)	107.60(15)
C(8)-C(7)-C(9)	105.76(15)
O(1)-C(8)-N(3)	127.76(18)
O(1)-C(8)-C(7)	124.75(17)
N(3)-C(8)-C(7)	107.40(15)
C(10)-C(9)-C(11)	110.68(17)
C(10)-C(9)-C(7)	112.80(16)
C(11)-C(9)-C(7)	110.94(16)
C(10)-C(9)-H(9)	107.4
C(11)-C(9)-H(9)	107.4
C(7)-C(9)-H(9)	107.4
N(2)-C(10)-C(9)	176.4(2)

N(1)-C(11)-C(9)	176.9(2)
C(13)-C(12)-C(7)	113.67(15)
C(13)-C(12)-H(12A)	108.8
C(7)-C(12)-H(12A)	108.8
C(13)-C(12)-H(12B)	108.8
C(7)-C(12)-H(12B)	108.8
H(12A)-C(12)-H(12B)	107.7
O(2)-C(13)-C(14)	121.18(18)
O(2)-C(13)-C(12)	119.87(17)
C(14)-C(13)-C(12)	118.92(16)
C(15)-C(14)-C(19)	119.00(19)
C(15)-C(14)-C(13)	122.39(18)
C(19)-C(14)-C(13)	118.61(18)
C(16)-C(15)-C(14)	120.1(2)
C(16)-C(15)-H(15)	120.0
C(14)-C(15)-H(15)	120.0
C(17)-C(16)-C(15)	120.4(2)
C(17)-C(16)-H(16)	119.8
C(15)-C(16)-H(16)	119.8
C(16)-C(17)-C(18)	120.0(2)
C(16)-C(17)-H(17)	120.0
C(18)-C(17)-H(17)	120.0
C(17)-C(18)-C(19)	120.4(2)
C(17)-C(18)-H(18)	119.8
C(19)-C(18)-H(18)	119.8
C(18)-C(19)-C(14)	120.0(2)
C(18)-C(19)-H(19)	120.0
C(14)-C(19)-H(19)	120.0
C(8)-N(3)-C(4)	111.97(16)
C(8)-N(3)-H(3')	124.4
C(4)-N(3)-H(3')	123.6

Symmetry transformations used to generate equivalent atoms:

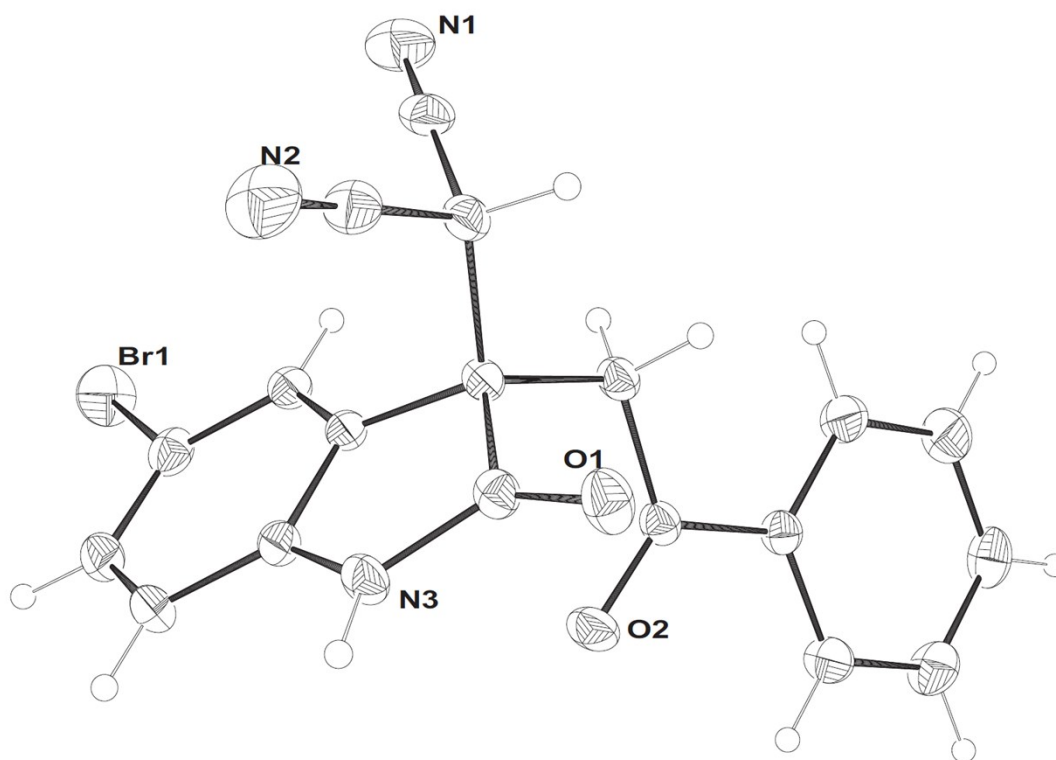
Table 4. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for a18075. The anisotropic displacement factor exponent takes the form: $-2\pi^2 [h^2 a^{*2} U^{11} + \dots + 2 h k a^* b^* U^{12}]$

	U ¹¹	U ²²	U ³³	U ²³	U ¹³	U ¹²
C(1)	31(1)	49(1)	36(1)	-19(1)	-9(1)	-7(1)
C(2)	30(1)	53(1)	43(1)	-20(1)	-15(1)	8(1)
C(3)	37(1)	38(1)	42(1)	-13(1)	-19(1)	10(1)
C(4)	33(1)	30(1)	31(1)	-13(1)	-13(1)	2(1)
C(5)	30(1)	28(1)	29(1)	-12(1)	-14(1)	1(1)
C(6)	34(1)	31(1)	33(1)	-11(1)	-14(1)	-3(1)
C(7)	27(1)	26(1)	31(1)	-8(1)	-13(1)	0(1)
C(8)	33(1)	26(1)	35(1)	-11(1)	-13(1)	-1(1)
C(9)	30(1)	33(1)	39(1)	-12(1)	-17(1)	2(1)
C(10)	39(1)	44(1)	43(1)	-15(1)	-18(1)	-7(1)
C(11)	44(1)	38(1)	42(1)	-11(1)	-26(1)	-2(1)
C(12)	32(1)	25(1)	34(1)	-8(1)	-14(1)	2(1)
C(13)	29(1)	25(1)	32(1)	-5(1)	-9(1)	-1(1)
C(14)	31(1)	27(1)	33(1)	-8(1)	-9(1)	-2(1)
C(15)	58(1)	35(1)	39(1)	-14(1)	-18(1)	10(1)
C(16)	64(2)	31(1)	54(1)	-11(1)	-17(1)	11(1)
C(17)	49(1)	35(1)	55(1)	-23(1)	-5(1)	-4(1)
C(18)	59(2)	50(2)	46(1)	-26(1)	-17(1)	-4(1)
C(19)	46(1)	35(1)	42(1)	-12(1)	-20(1)	-1(1)
N(1)	76(2)	50(1)	50(1)	-1(1)	-32(1)	-11(1)
N(2)	82(2)	52(1)	69(2)	-26(1)	-30(1)	-12(1)
N(3)	37(1)	22(1)	37(1)	-4(1)	-13(1)	2(1)
O(1)	33(1)	37(1)	50(1)	-5(1)	-5(1)	-3(1)
O(2)	56(1)	29(1)	45(1)	-10(1)	-29(1)	10(1)
Br(1)	36(1)	75(1)	62(1)	-11(1)	-6(1)	-18(1)

Table 5. Hydrogen coordinates ($\times 10^4$) and isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for a18075.

	x	y	z	U(eq)
H(2)	14725	346	6271	49
H(3)	12709	-986	7983	46
H(6)	11392	3495	5447	37
H(9)	6713	2343	6732	39
H(12A)	8434	4270	7101	36
H(12B)	6820	3626	8107	36
H(15)	6936	6087	8135	54
H(16)	6026	8024	9062	63
H(17)	6248	7962	11172	57
H(18)	7398	5970	12367	58
H(19)	8361	4031	11447	47
H(3')	9447	-957	9271	40

CCDC 1481435 (4g)



(b) X-Ray Crystallographic Data of **5g**

Table 1. Crystal data and structure refinement for **5g**.

Identification code	18074	
Empirical formula	C ₁₉ H ₁₂ Br N ₃ O ₂ S	
Formula weight	426.29	
Temperature	200(2) K	
Wavelength	0.71073 Å	
Crystal system	Orthorhombic	
Space group	P b c a	
Unit cell dimensions	a = 11.1742(7) Å	α = 90°.
	b = 9.5722(6) Å	β = 90°.
	c = 34.645(2) Å	γ = 90°.
Volume	3705.7(4) Å ³	
Z	8	
Density (calculated)	1.528 Mg/m ³	
Absorption coefficient	2.349 mm ⁻¹	
F(000)	1712	
Crystal size	0.52 x 0.34 x 0.11 mm ³	
Theta range for data collection	2.86 to 25.03°.	
Index ranges	-11 ≤ h ≤ 13, -8 ≤ k ≤ 11, -41 ≤ l ≤ 39	
Reflections collected	18717	
Independent reflections	3277 [R(int) = 0.0307]	
Completeness to theta = 25.03°	99.9 %	
Absorption correction	multi-scan	
Max. and min. transmission	0.7821 and 0.3747	
Refinement method	Full-matrix least-squares on F ²	
Data / restraints / parameters	3277 / 0 / 235	
Goodness-of-fit on F ²	1.055	
Final R indices [I > 2σ(I)]	R1 = 0.0308, wR2 = 0.0941	
R indices (all data)	R1 = 0.0418, wR2 = 0.1013	
Largest diff. peak and hole	0.268 and -0.419 e.Å ⁻³	

Table 2. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 18074. $U(\text{eq})$ is defined as one third of the trace of the orthogonalized U^{ij} tensor.

	x	y	z	U(eq)
C(1)	3915(2)	10583(3)	5797(1)	31(1)
C(2)	3561(2)	10527(3)	5416(1)	37(1)
C(3)	3686(2)	9298(3)	5208(1)	37(1)
C(4)	4176(2)	8157(3)	5396(1)	27(1)
C(5)	4515(2)	8223(3)	5783(1)	24(1)
C(6)	4399(2)	9447(3)	5989(1)	27(1)
C(7)	5059(2)	6832(2)	5897(1)	23(1)
C(8)	5001(2)	6006(3)	5510(1)	28(1)
C(9)	6386(2)	7032(3)	6019(1)	25(1)
C(10)	7078(2)	7553(3)	5685(1)	33(1)
C(11)	6951(2)	5759(3)	6174(1)	32(1)
C(12)	4353(2)	5956(3)	6190(1)	27(1)
C(13)	4315(2)	6502(3)	6598(1)	28(1)
C(14)	3569(2)	6202(3)	7347(1)	42(1)
C(15)	2813(3)	7228(3)	7480(1)	52(1)
C(16)	2994(3)	7786(4)	7846(1)	59(1)
C(17)	3909(3)	7320(4)	8073(1)	56(1)
C(18)	4653(3)	6287(4)	7940(1)	60(1)
C(19)	4494(3)	5724(4)	7580(1)	56(1)
N(1)	4458(2)	6833(2)	5245(1)	31(1)
N(2)	7540(2)	7939(3)	5416(1)	51(1)
N(3)	7386(2)	4807(3)	6307(1)	50(1)
O(1)	5377(2)	4826(2)	5468(1)	38(1)
O(2)	4883(2)	7472(2)	6718(1)	40(1)
S(1)	3339(1)	5464(1)	6885(1)	51(1)
Br(1)	3757(1)	12304(1)	6068(1)	45(1)

Table 3. Bond lengths [\AA] and angles [$^\circ$] for 18074.

C(1)-C(2)	1.380(4)
C(1)-C(6)	1.384(4)
C(1)-Br(1)	1.903(3)
C(2)-C(3)	1.387(4)
C(2)-H(2)	0.9500
C(3)-C(4)	1.384(4)
C(3)-H(3)	0.9500
C(4)-C(5)	1.395(3)
C(4)-N(1)	1.406(3)
C(5)-C(6)	1.378(3)
C(5)-C(7)	1.516(3)
C(6)-H(6)	0.9500
C(7)-C(12)	1.535(3)
C(7)-C(9)	1.553(3)
C(7)-C(8)	1.558(3)
C(8)-O(1)	1.214(3)
C(8)-N(1)	1.355(3)
C(9)-C(11)	1.474(4)
C(9)-C(10)	1.478(4)
C(9)-H(9)	1.0000
C(10)-N(2)	1.127(3)
C(11)-N(3)	1.132(3)
C(12)-C(13)	1.508(3)
C(12)-H(12A)	0.9900
C(12)-H(12B)	0.9900
C(13)-O(2)	1.200(3)
C(13)-S(1)	1.780(2)
C(14)-C(15)	1.375(4)
C(14)-C(19)	1.388(4)
C(14)-S(1)	1.768(3)
C(15)-C(16)	1.390(4)
C(15)-H(15)	0.9500
C(16)-C(17)	1.364(5)
C(16)-H(16)	0.9500
C(17)-C(18)	1.371(5)
C(17)-H(17)	0.9500

C(18)-C(19)	1.371(5)
C(18)-H(18)	0.9500
C(19)-H(19)	0.9500
N(1)-H(1)	0.9414
C(2)-C(1)-C(6)	122.7(2)
C(2)-C(1)-Br(1)	118.6(2)
C(6)-C(1)-Br(1)	118.67(19)
C(1)-C(2)-C(3)	120.1(2)
C(1)-C(2)-H(2)	119.9
C(3)-C(2)-H(2)	119.9
C(4)-C(3)-C(2)	117.7(2)
C(4)-C(3)-H(3)	121.1
C(2)-C(3)-H(3)	121.1
C(3)-C(4)-C(5)	121.5(2)
C(3)-C(4)-N(1)	128.8(2)
C(5)-C(4)-N(1)	109.6(2)
C(6)-C(5)-C(4)	120.8(2)
C(6)-C(5)-C(7)	130.4(2)
C(4)-C(5)-C(7)	108.6(2)
C(5)-C(6)-C(1)	117.1(2)
C(5)-C(6)-H(6)	121.4
C(1)-C(6)-H(6)	121.4
C(5)-C(7)-C(12)	116.52(19)
C(5)-C(7)-C(9)	110.2(2)
C(12)-C(7)-C(9)	112.18(19)
C(5)-C(7)-C(8)	101.83(18)
C(12)-C(7)-C(8)	105.66(19)
C(9)-C(7)-C(8)	109.65(18)
O(1)-C(8)-N(1)	128.1(2)
O(1)-C(8)-C(7)	124.2(2)
N(1)-C(8)-C(7)	107.7(2)
C(11)-C(9)-C(10)	109.8(2)
C(11)-C(9)-C(7)	114.0(2)
C(10)-C(9)-C(7)	109.16(19)
C(11)-C(9)-H(9)	107.9
C(10)-C(9)-H(9)	107.9
C(7)-C(9)-H(9)	107.9

N(2)-C(10)-C(9)	175.5(3)
N(3)-C(11)-C(9)	177.1(3)
C(13)-C(12)-C(7)	116.5(2)
C(13)-C(12)-H(12A)	108.2
C(7)-C(12)-H(12A)	108.2
C(13)-C(12)-H(12B)	108.2
C(7)-C(12)-H(12B)	108.2
H(12A)-C(12)-H(12B)	107.3
O(2)-C(13)-C(12)	125.3(2)
O(2)-C(13)-S(1)	124.23(19)
C(12)-C(13)-S(1)	110.42(17)
C(15)-C(14)-C(19)	119.9(3)
C(15)-C(14)-S(1)	119.9(2)
C(19)-C(14)-S(1)	120.1(2)
C(14)-C(15)-C(16)	119.3(3)
C(14)-C(15)-H(15)	120.3
C(16)-C(15)-H(15)	120.3
C(17)-C(16)-C(15)	120.6(3)
C(17)-C(16)-H(16)	119.7
C(15)-C(16)-H(16)	119.7
C(16)-C(17)-C(18)	119.8(3)
C(16)-C(17)-H(17)	120.1
C(18)-C(17)-H(17)	120.1
C(19)-C(18)-C(17)	120.7(3)
C(19)-C(18)-H(18)	119.7
C(17)-C(18)-H(18)	119.7
C(18)-C(19)-C(14)	119.7(3)
C(18)-C(19)-H(19)	120.2
C(14)-C(19)-H(19)	120.2
C(8)-N(1)-C(4)	112.11(19)
C(8)-N(1)-H(1)	119.8
C(4)-N(1)-H(1)	128.1
C(14)-S(1)-C(13)	101.22(13)

Symmetry transformations used to generate equivalent atoms:

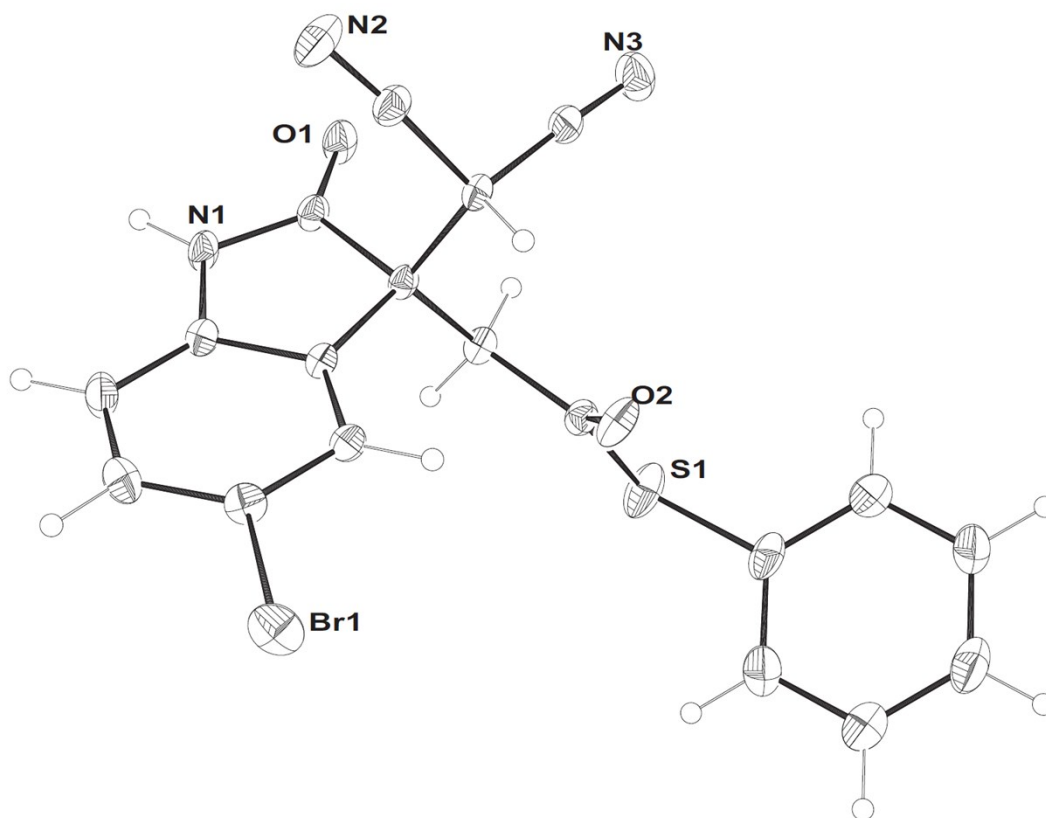
Table 4. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 18074. The anisotropic displacement factor exponent takes the form: $-2\pi^2 [h^2 a^{*2} U^{11} + \dots + 2 h k a^* b^* U^{12}]$

	U^{11}	U^{22}	U^{33}	U^{23}	U^{13}	U^{12}
C(1)	34(1)	22(1)	35(1)	-1(1)	1(1)	-3(1)
C(2)	38(2)	32(2)	40(2)	8(1)	-7(1)	2(1)
C(3)	44(2)	40(2)	26(1)	5(1)	-7(1)	4(1)
C(4)	30(1)	29(1)	23(1)	-1(1)	-1(1)	-2(1)
C(5)	28(1)	25(1)	19(1)	-1(1)	1(1)	-2(1)
C(6)	29(1)	26(1)	24(1)	-2(1)	1(1)	-2(1)
C(7)	31(1)	21(1)	18(1)	-4(1)	-1(1)	0(1)
C(8)	35(1)	28(1)	20(1)	-5(1)	-1(1)	0(1)
C(9)	30(1)	29(1)	17(1)	-2(1)	-1(1)	-2(1)
C(10)	34(1)	41(2)	24(1)	-6(1)	0(1)	-5(1)
C(11)	37(1)	35(2)	24(1)	-9(1)	-4(1)	4(1)
C(12)	33(1)	23(1)	24(1)	-1(1)	1(1)	-6(1)
C(13)	33(1)	27(1)	23(1)	4(1)	3(1)	0(1)
C(14)	49(2)	53(2)	23(1)	9(1)	7(1)	-11(1)
C(15)	56(2)	62(2)	37(2)	6(2)	-7(1)	3(2)
C(16)	68(2)	72(2)	38(2)	-5(2)	3(2)	11(2)
C(17)	61(2)	78(3)	28(2)	2(2)	0(1)	-13(2)
C(18)	53(2)	96(3)	32(2)	8(2)	-5(1)	11(2)
C(19)	53(2)	77(2)	37(2)	6(2)	8(1)	12(2)
N(1)	42(1)	31(1)	18(1)	-6(1)	-7(1)	2(1)
N(2)	52(2)	72(2)	28(1)	-5(1)	9(1)	-20(1)
N(3)	63(2)	44(2)	42(1)	-7(1)	-14(1)	19(1)
O(1)	58(1)	30(1)	26(1)	-9(1)	-7(1)	7(1)
O(2)	59(1)	36(1)	24(1)	-6(1)	8(1)	-16(1)
S(1)	65(1)	58(1)	29(1)	5(1)	7(1)	-28(1)
Br(1)	52(1)	21(1)	60(1)	-6(1)	-6(1)	1(1)

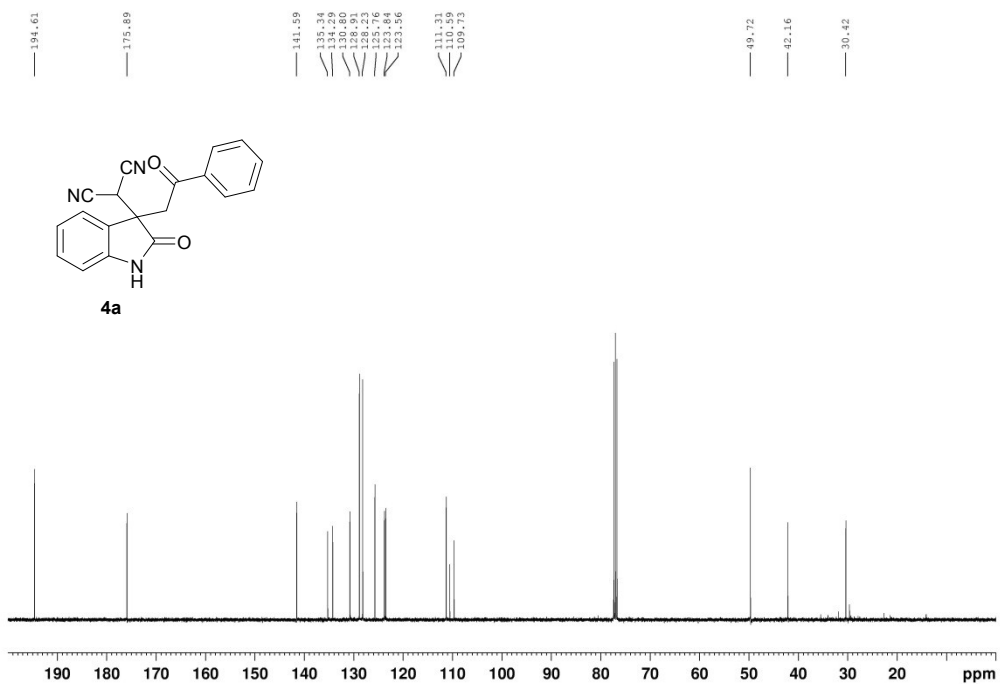
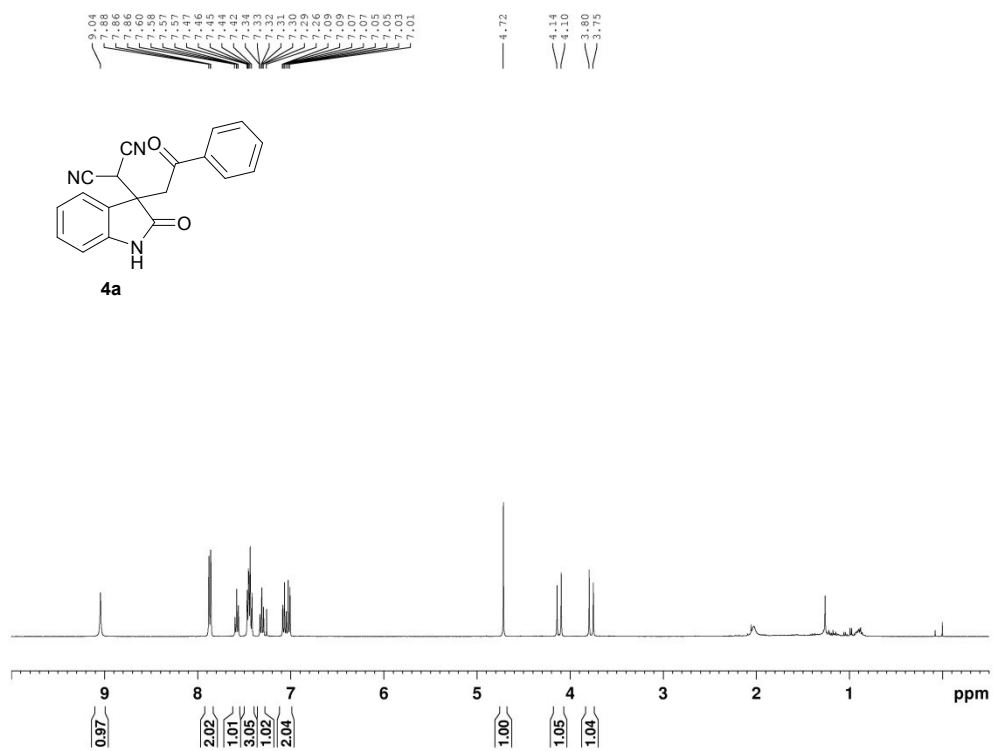
Table 5. Hydrogen coordinates ($\times 10^4$) and isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 18074.

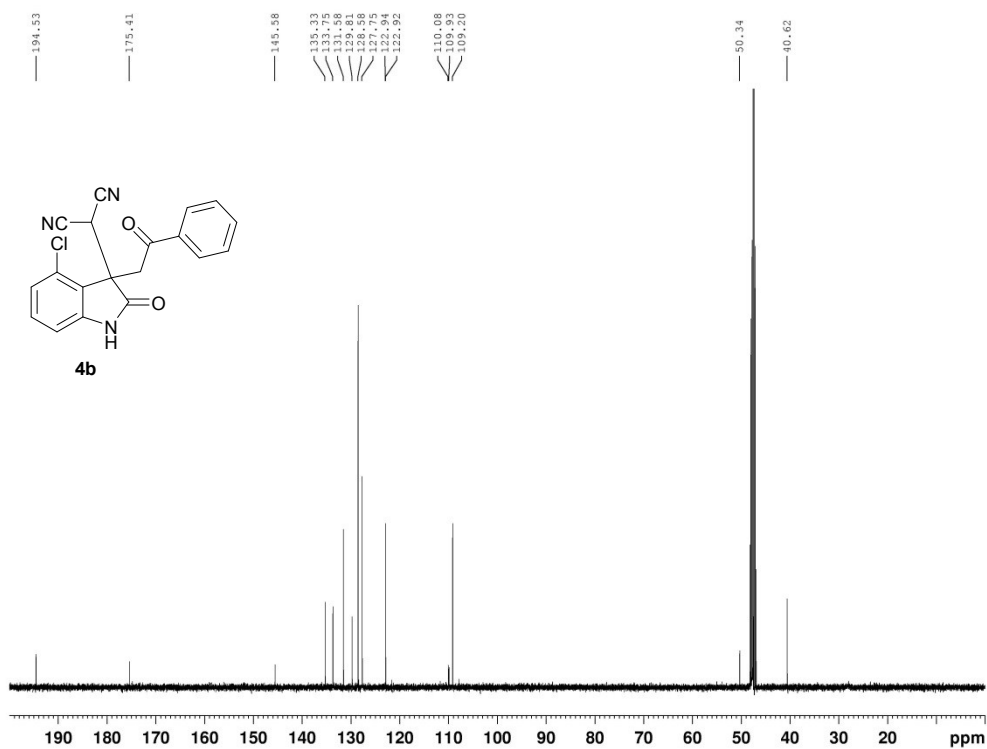
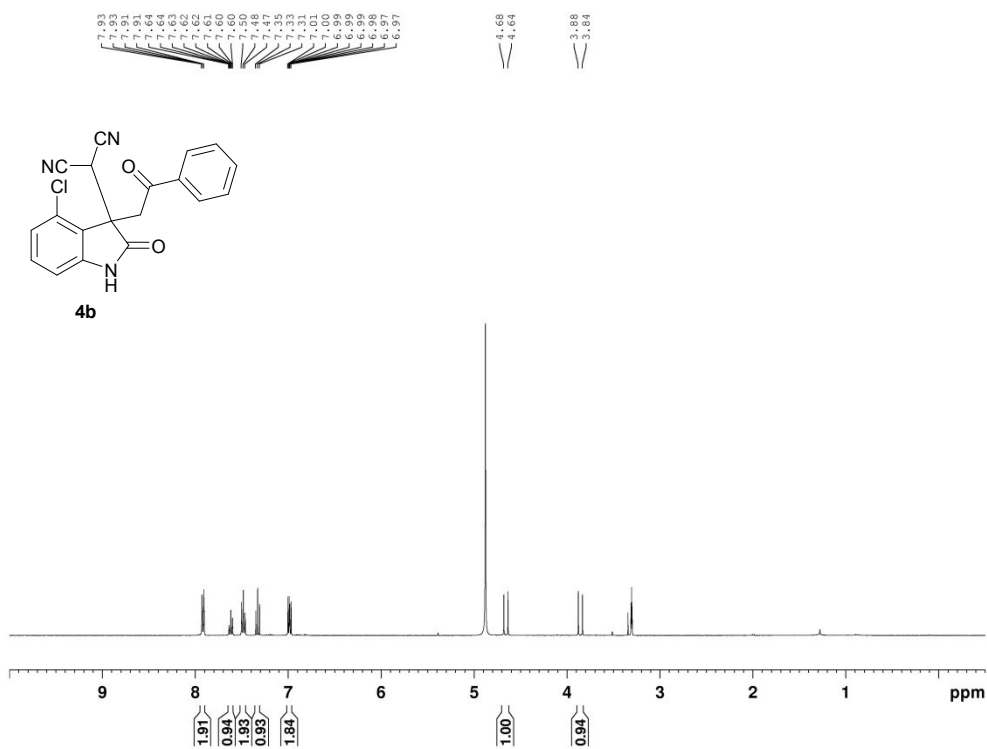
	x	y	z	U(eq)
H(2)	3231	11331	5296	44
H(3)	3444	9241	4946	44
H(6)	4640	9507	6251	32
H(1)	4338	6501	4992	33
H(9)	6411	7763	6225	30
H(12A)	3520	5867	6096	32
H(12B)	4703	5006	6195	32
H(15)	2173	7553	7323	62
H(16)	2477	8498	7939	71
H(17)	4030	7710	8322	67
H(18)	5285	5958	8099	72
H(19)	5015	5010	7489	67

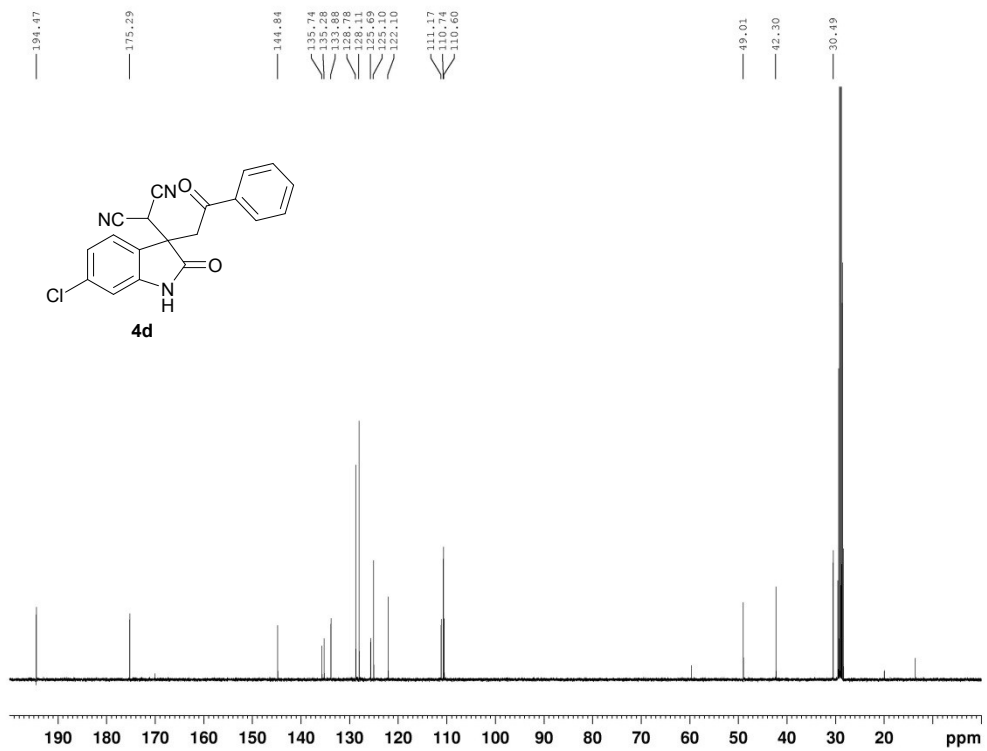
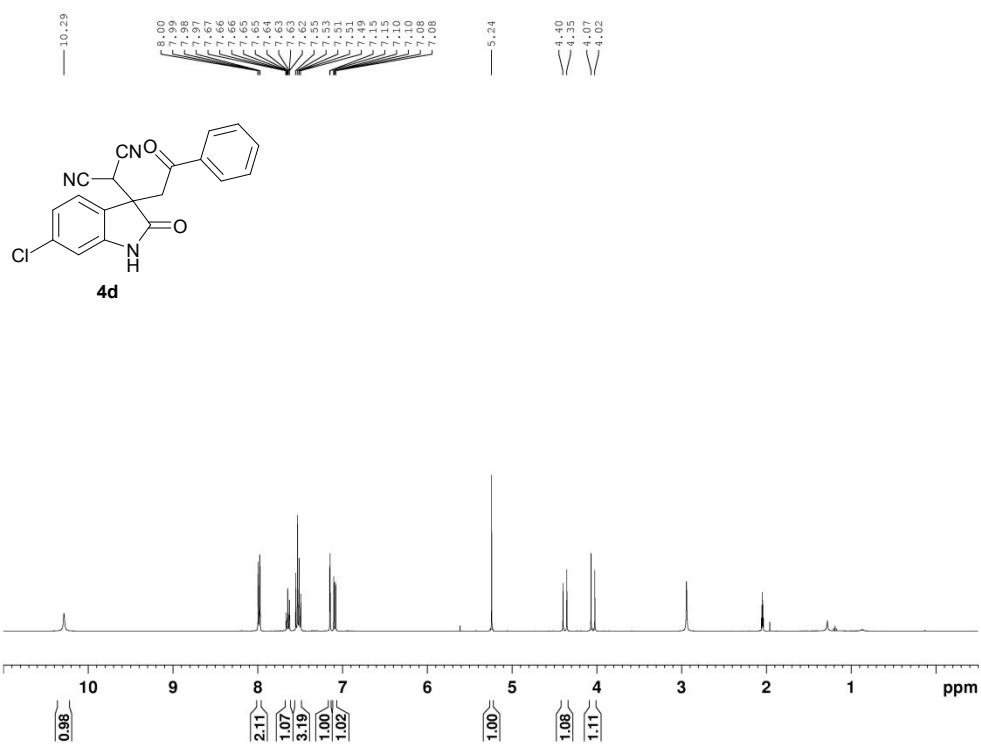
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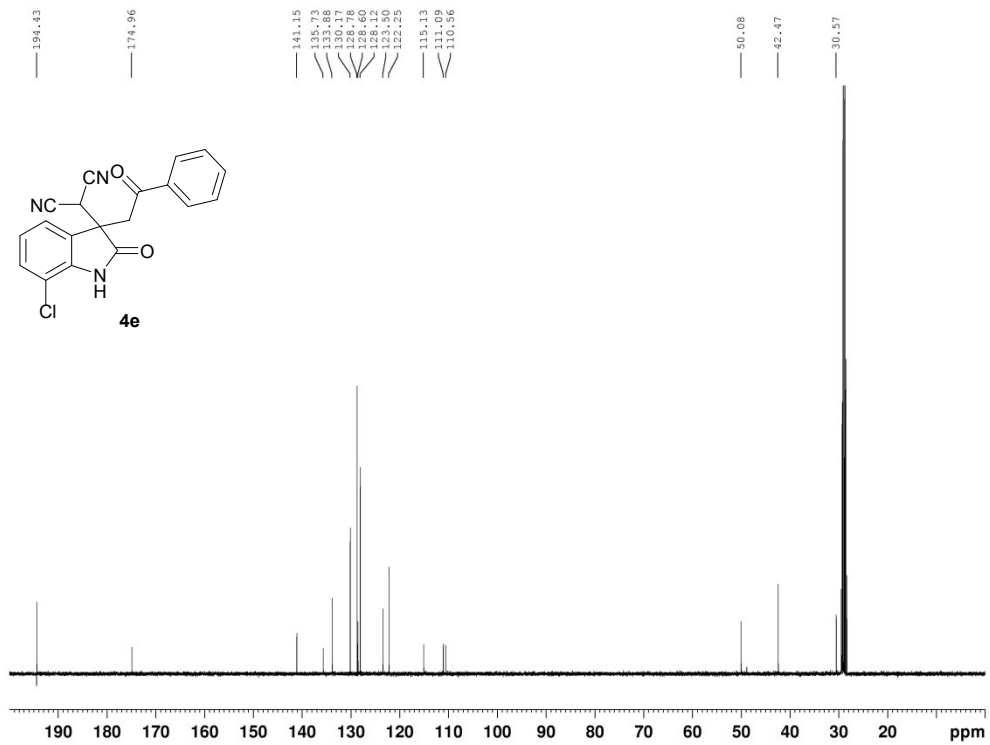
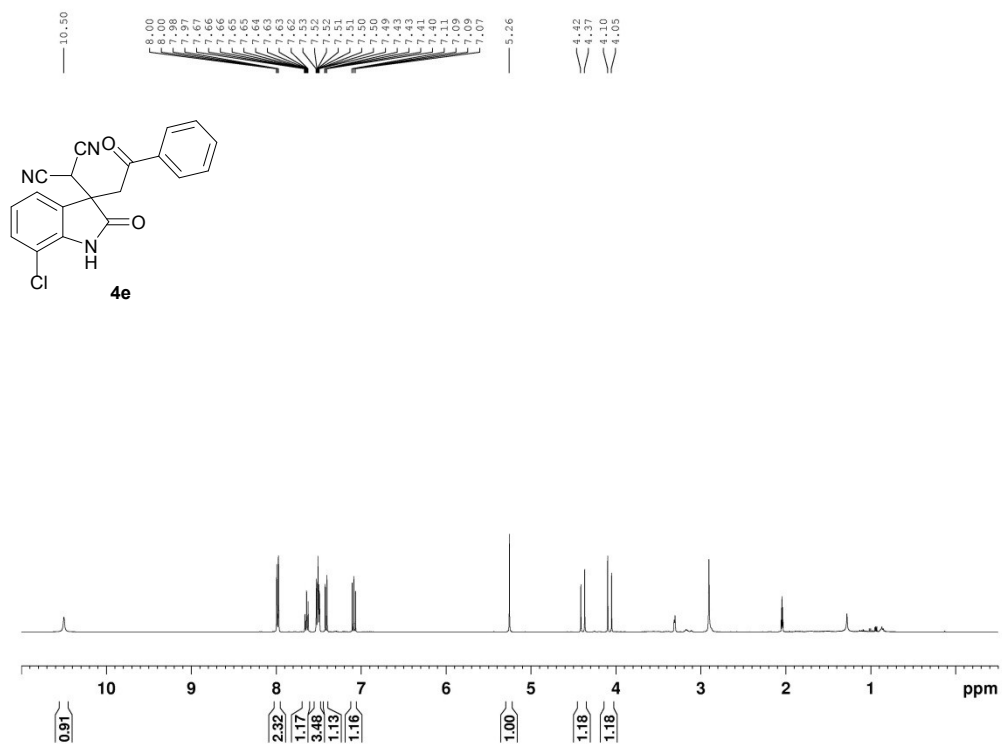


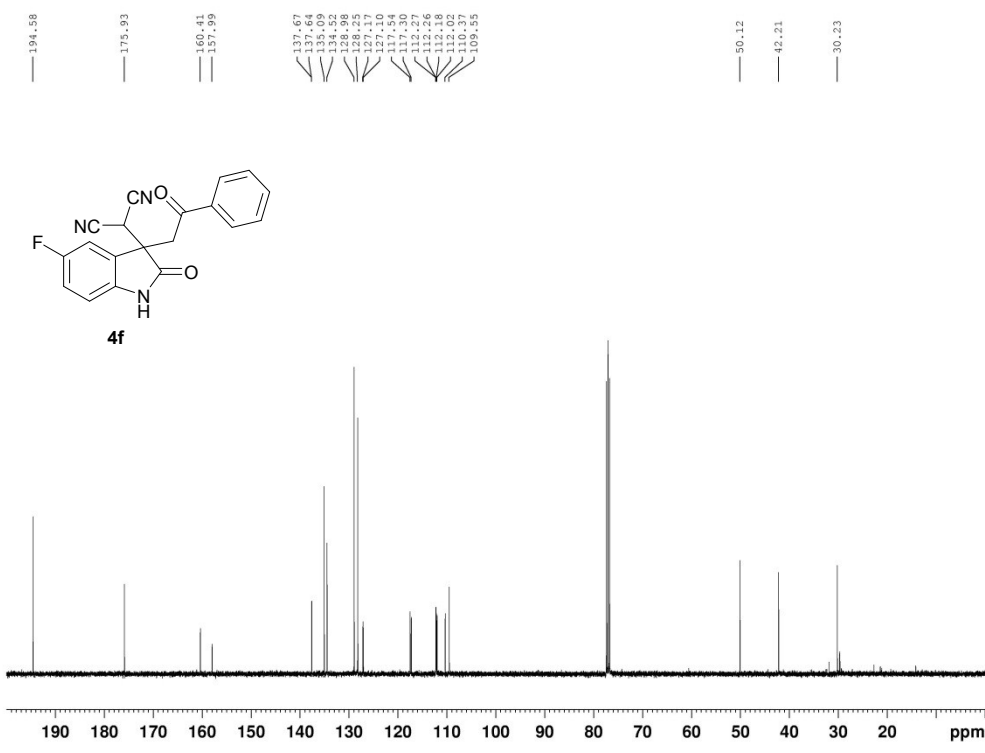
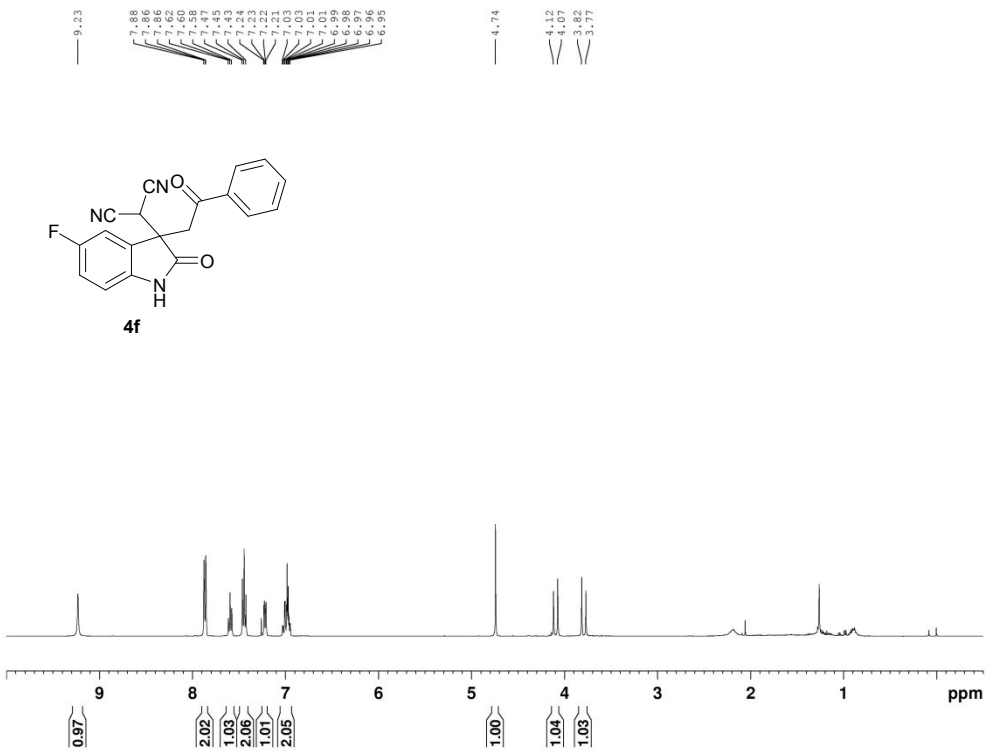
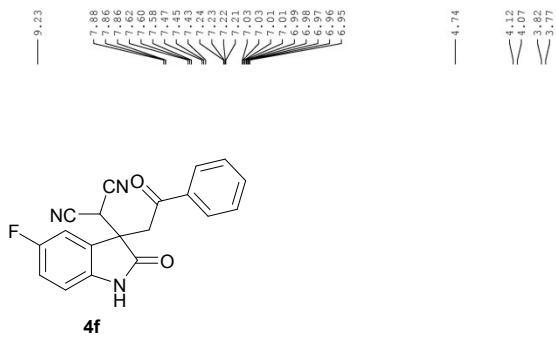
2. Copies of NMR Spectra of Products 4 and 5

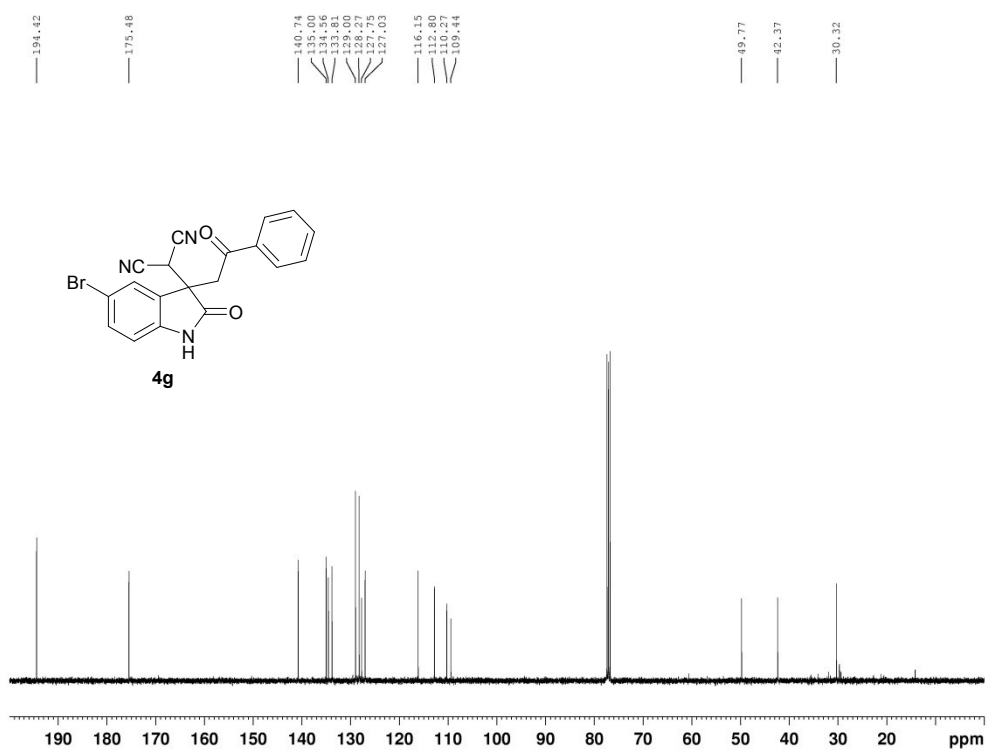
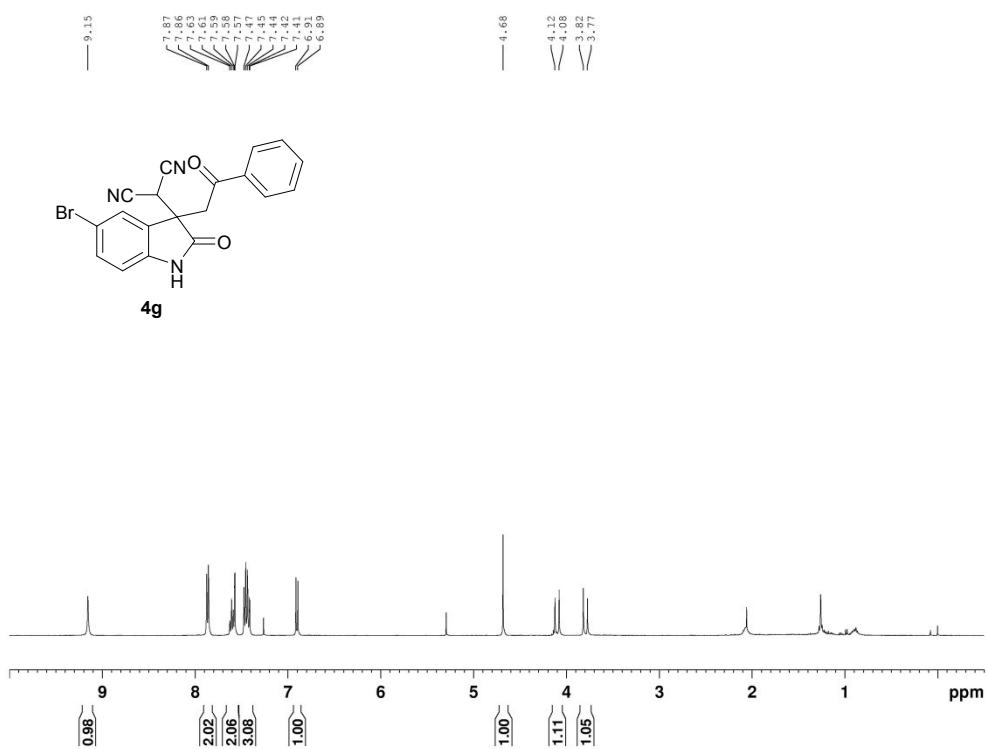


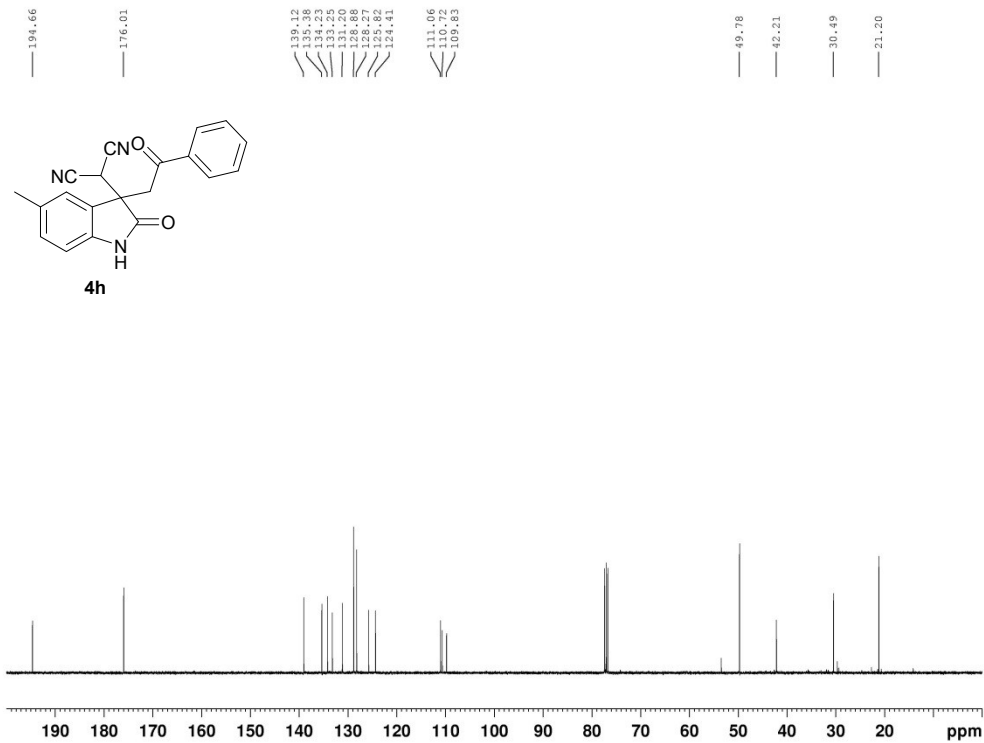
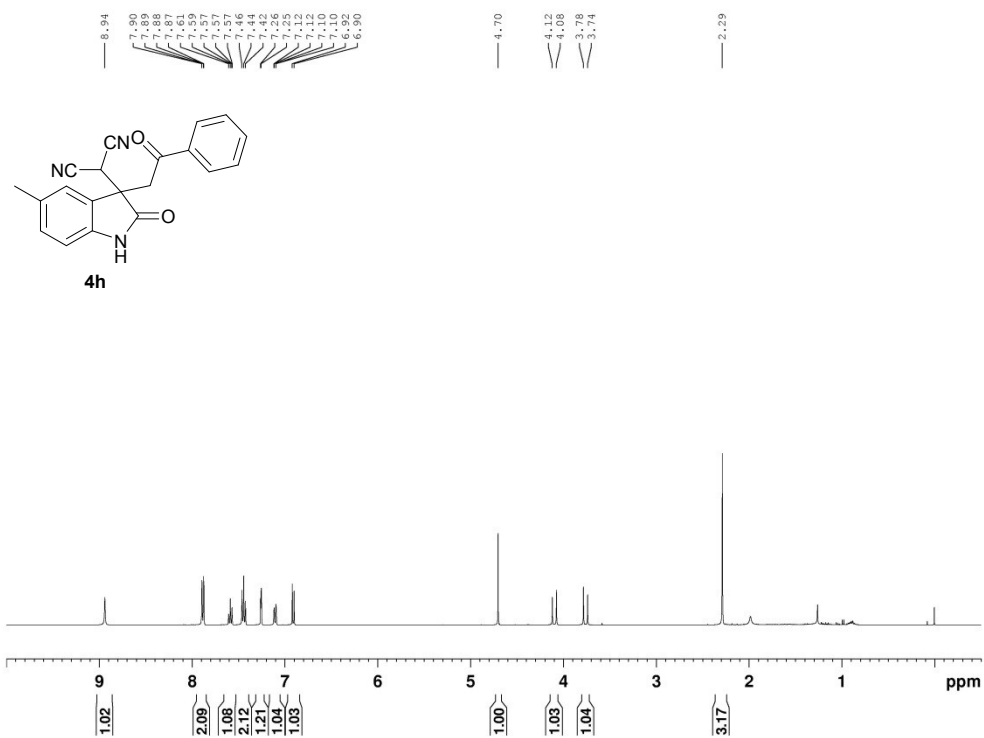


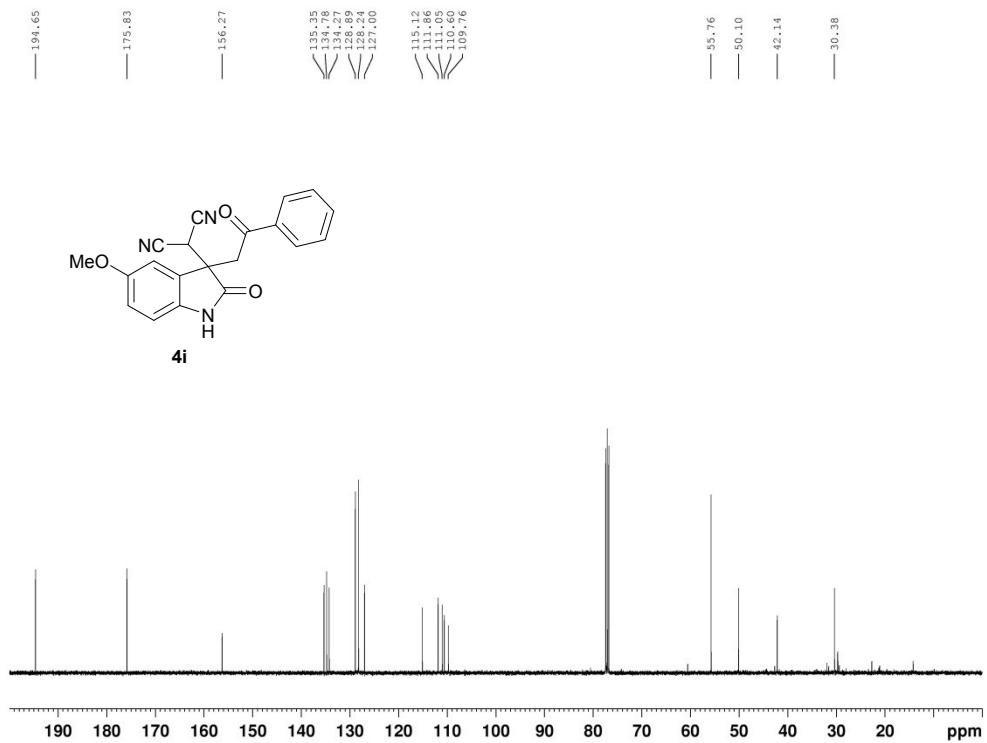
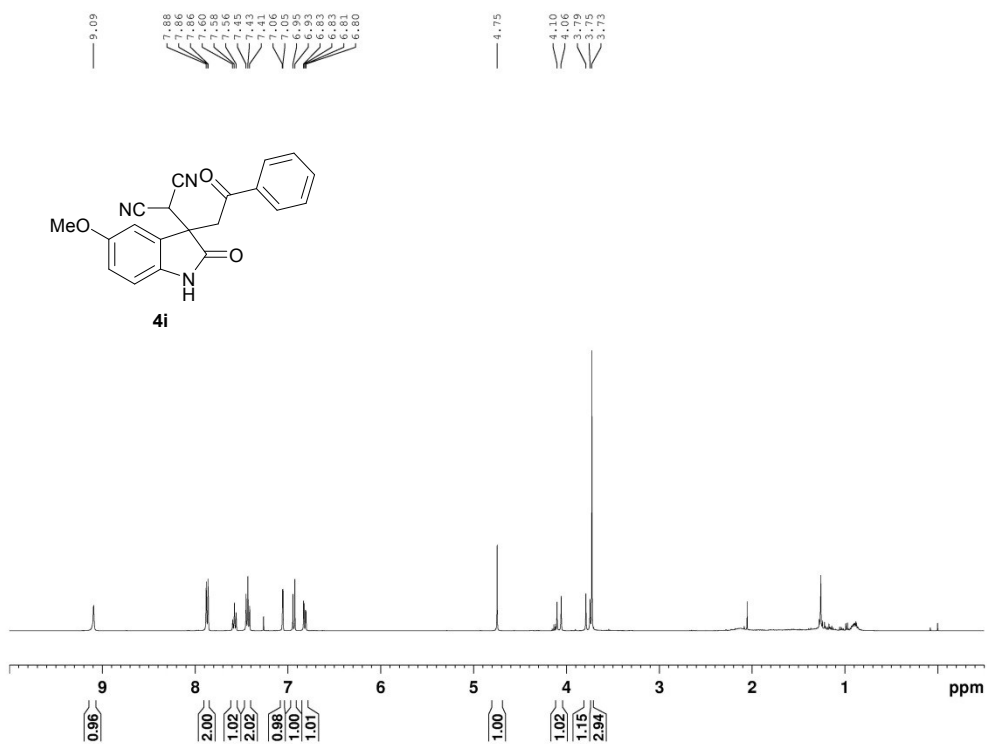


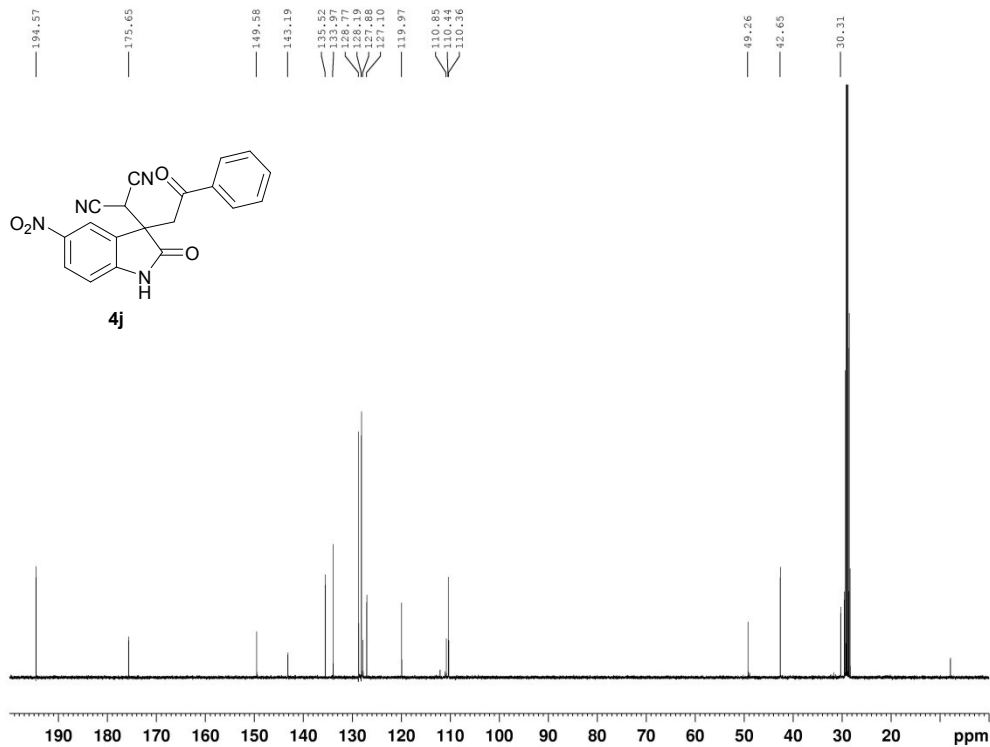
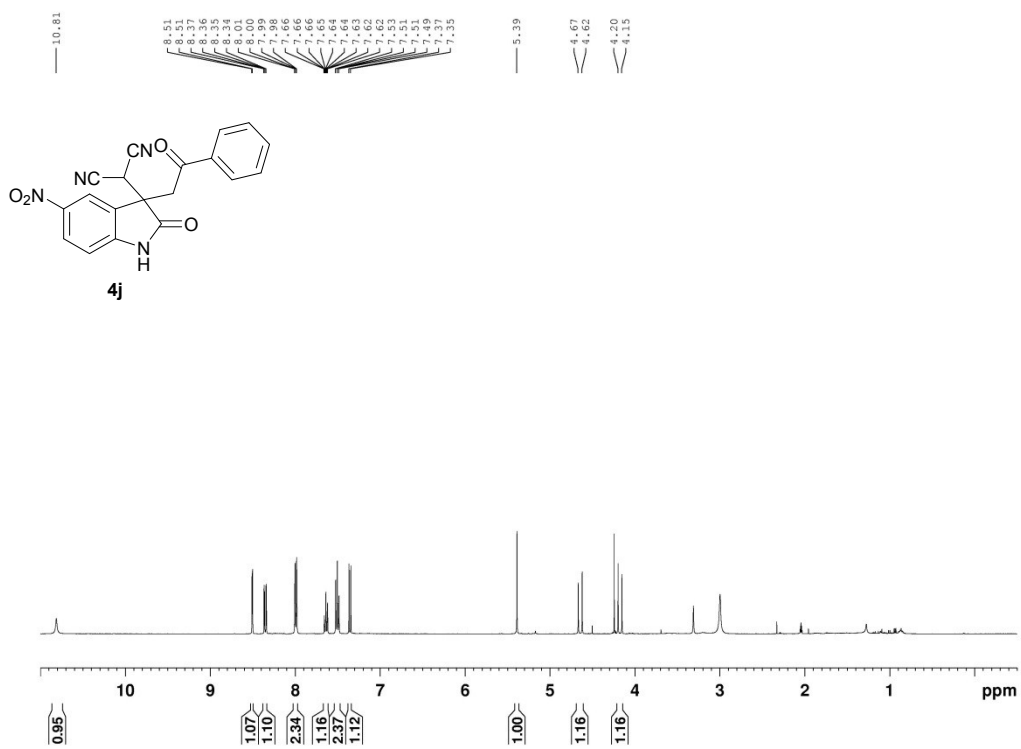


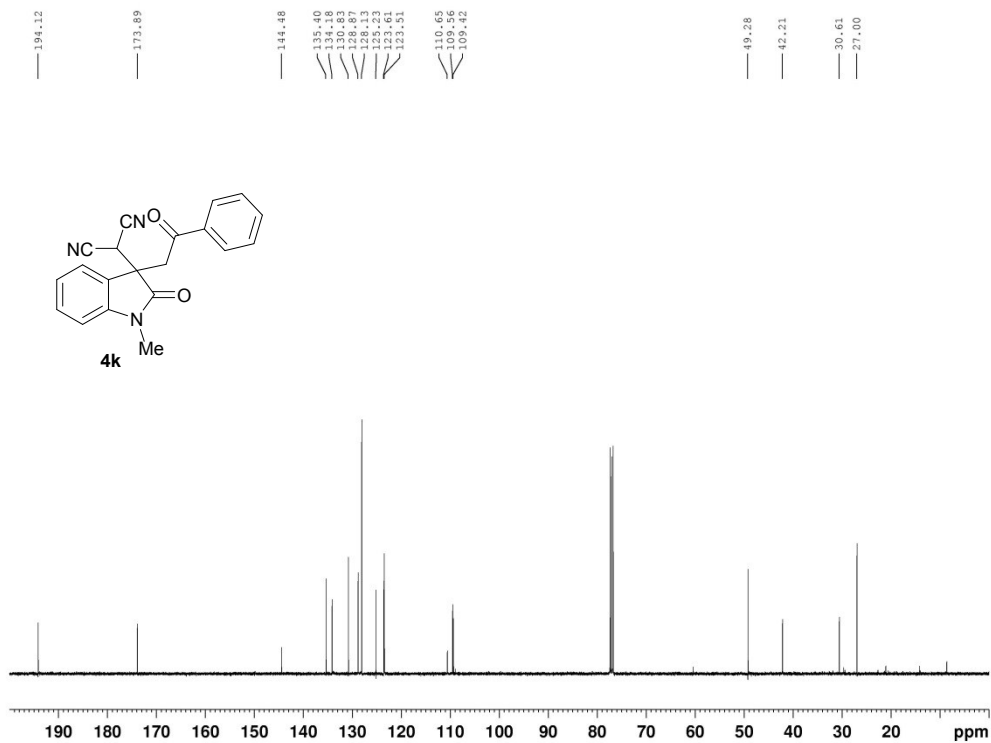
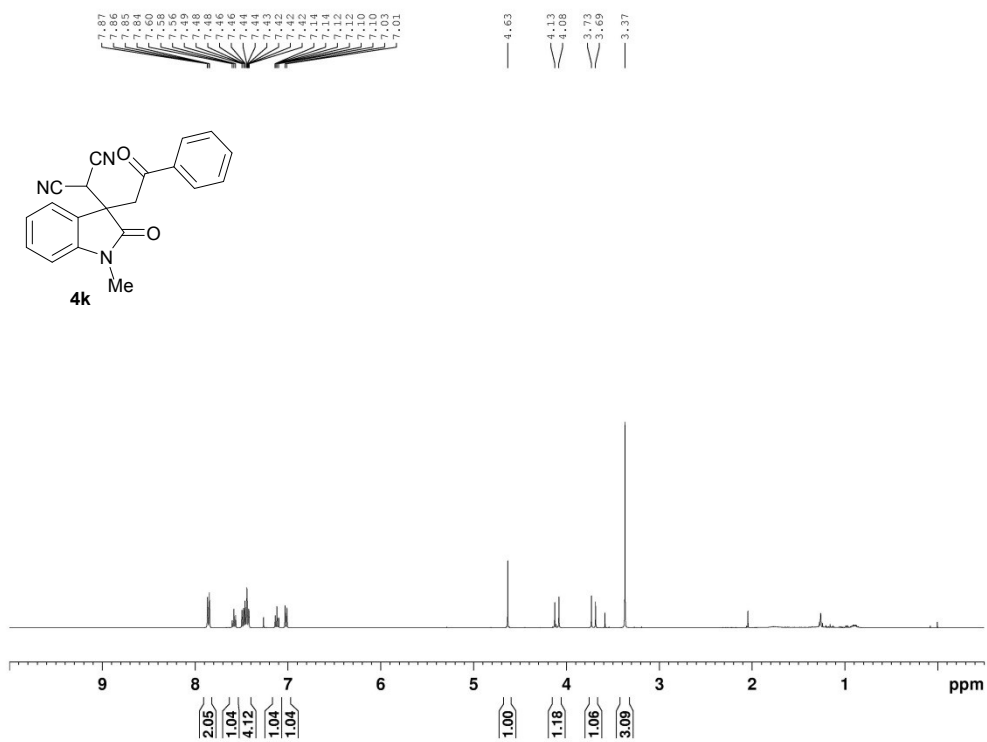


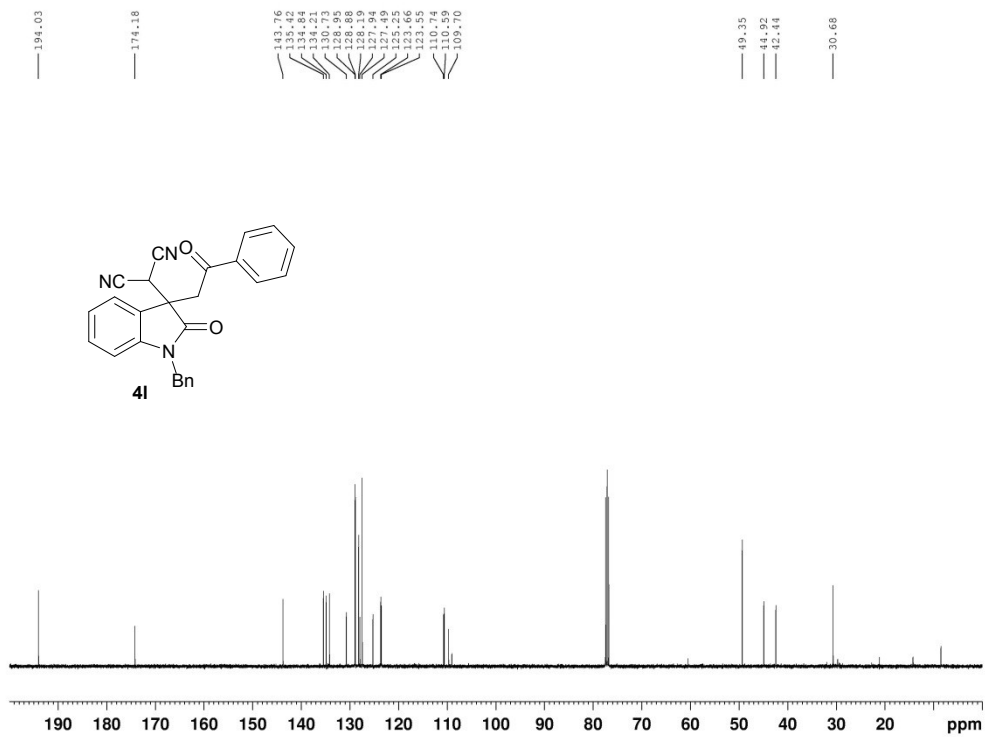
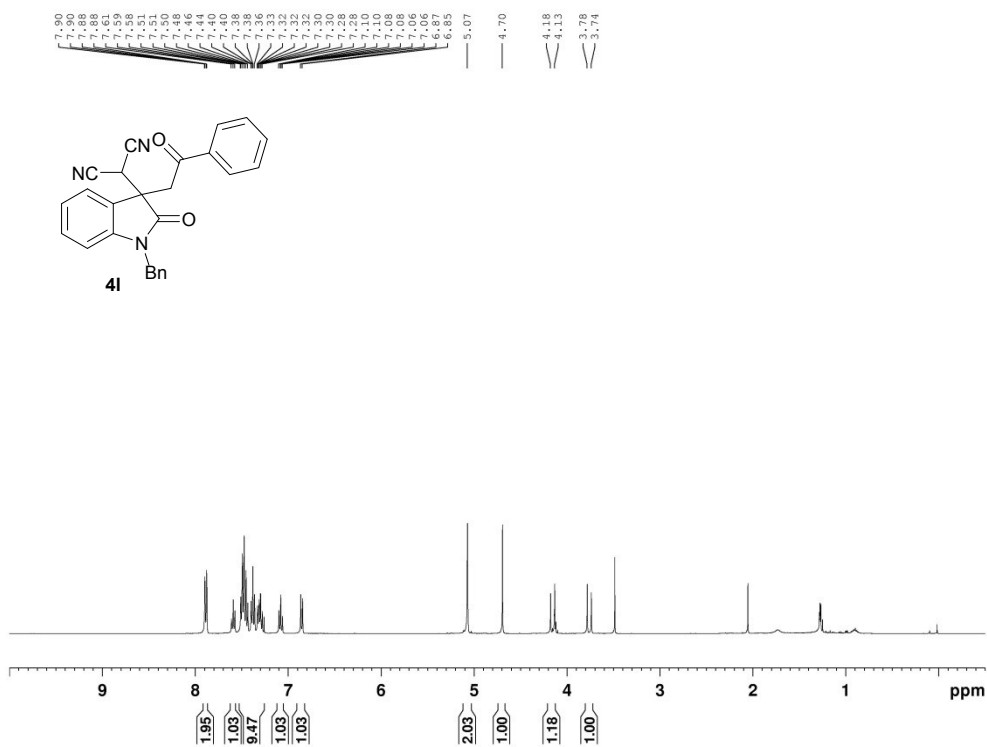




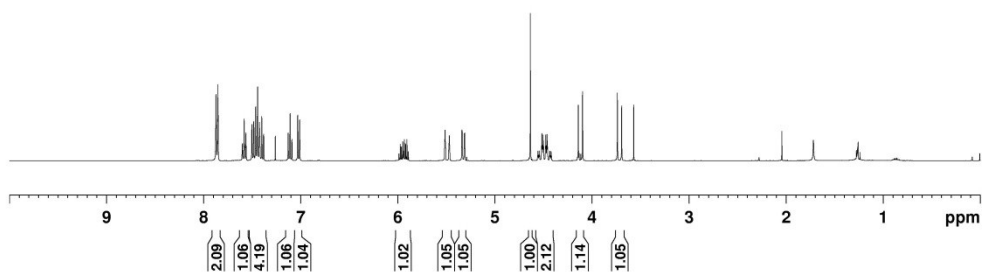
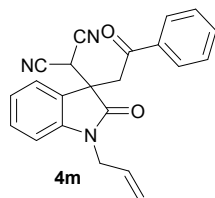








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