Supplementary Material

for

Lanthanide chloride complexes of amine bis-phenolate ligands and their reactivity in the ring-opening polymerization of ε-caprolactone

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Note: All NMR spectra were obtained using D_8-toluene as the solvent. This allowed for comparisons to be made with spectra obtained during kinetics experiments. $CDCl_3$ which is conventionally used for NMR spectra of P(ε-CL) was not used as this would have reacted with Ln-phenolate bonds. Therefore, some methylene protons of the polymer are masked by the $–CH_3$ resonances of the deuterated solvent.

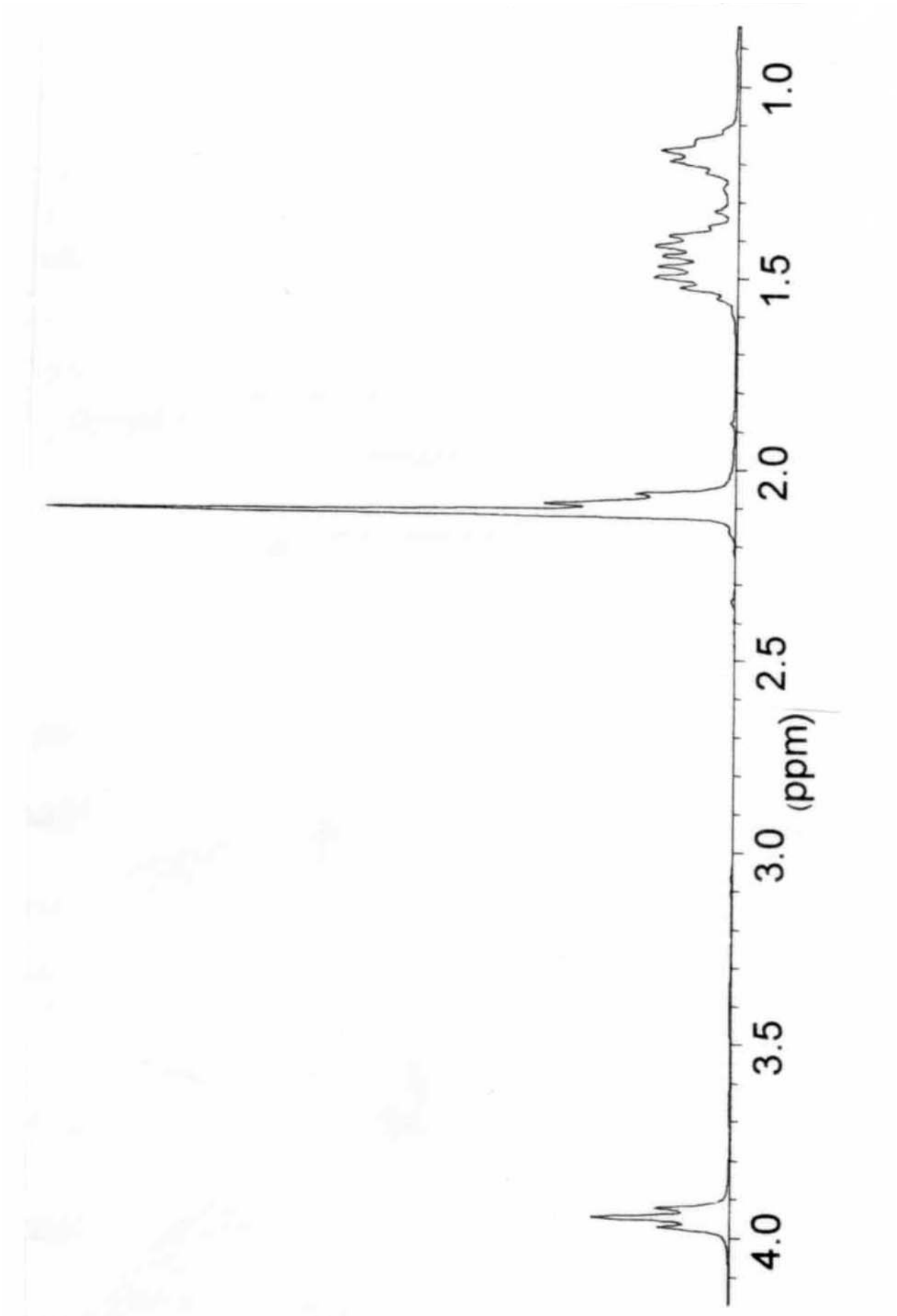
For spectral comparison purposes of a hydroxyl-terminated P(ε-CL), readers should consult: *Macromolecules*, 2001, **34**, 4691-4696 and other papers referenced in the main article.

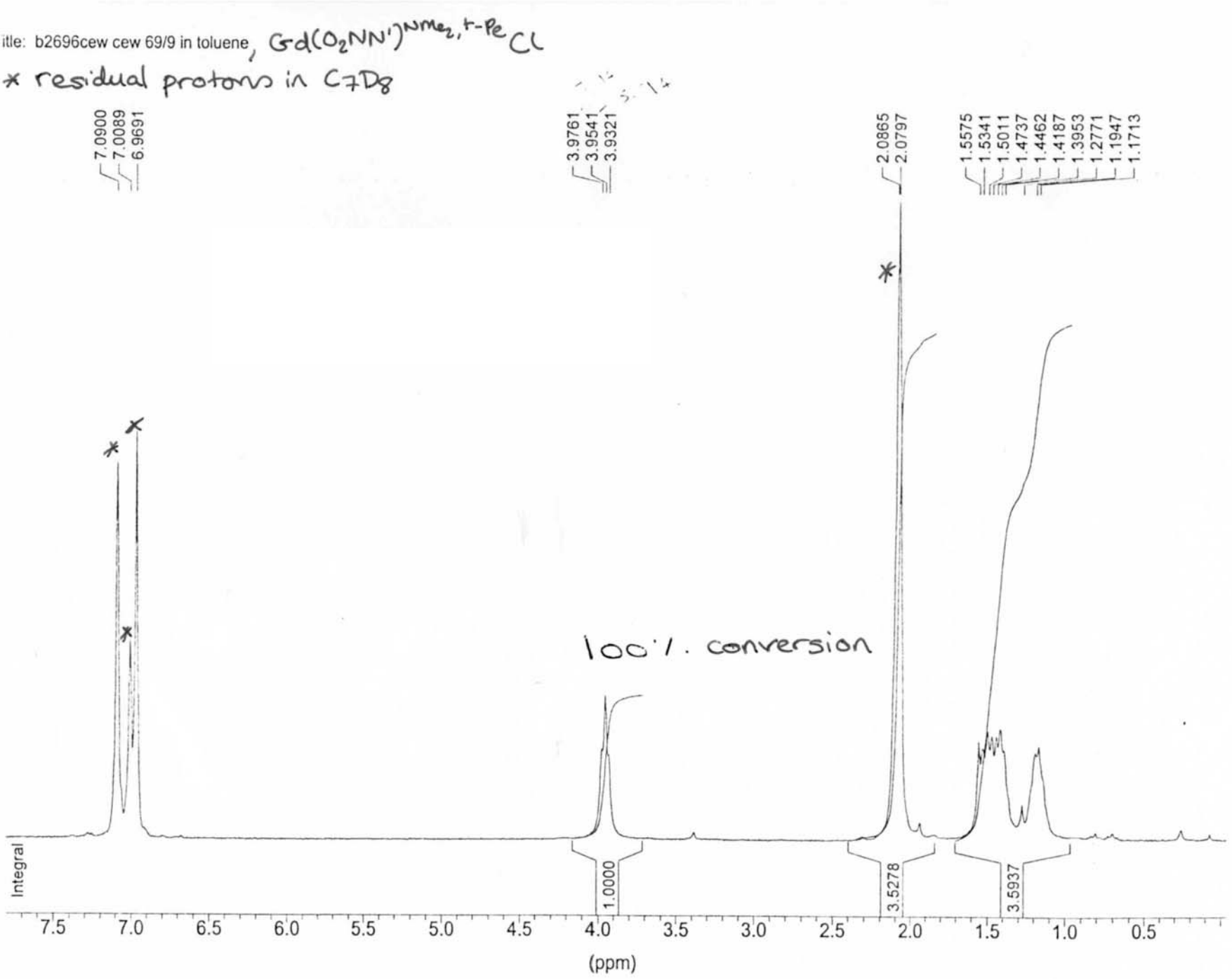
$HOCH_2$ methylene protons of P(ε-CL) typically appear at 3.65 ppm.

p.S2 Expansion of 'alcohol' region of the ^{1}H NMR spectrum of P(ε-CL) prepared using Y(O_2NN'$^{t\text{-}Am}$)Cl(THF)

p.S3 ^{1}H NMR spectrum of P(ε-CL) prepared using {Gd(O_2NN'$^{t\text{-}Am}$)Cl(THF)}$_2$, slightly broadened due to residual Gd^{3+}

p.S4 ^{1}H NMR spectrum of P(ε-CL) prepared using Sm(O_2NN'$^{t\text{-}Am}$)Cl(THF)


4.0
3.5
3.0
2.5
2.0
1.5
1.0
(ppm)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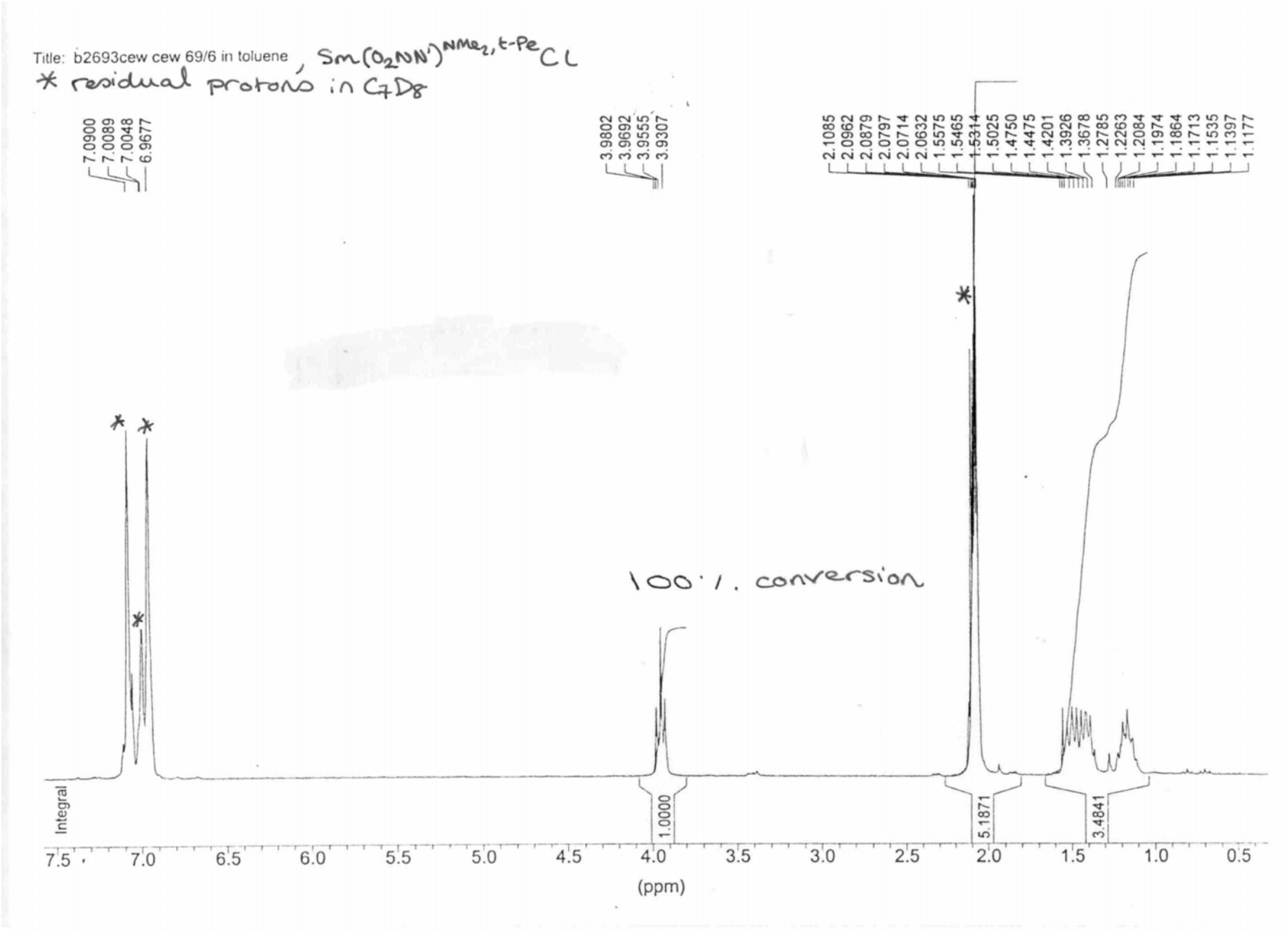
* residual protons in C7D8
7.0900
7.0089
6.9691
3.9761
3.9541
3.9321
2.0865
2.0797
1.5575
1.5341
1.5011
1.4737
1.4462
1.4187
1.3953
1.2771
1.1947
1.1713
100% conversion
Integral
1.0000
3.5278
3.5937
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
(ppm)


Title: b2693cew cew 69/6 in toluene, Sm(O2NN')NMe2, t-Pe Cl
* residual protons in C7D8
7.0900
7.0089
7.0048
6.9677
3.9802
3.9692
3.9555
3.9307
2.1085
2.0962
2.0879
2.0797
2.0714
2.0632
1.5575
1.5465
1.5314
1.5025
1.4750
1.4475
1.4201
1.3926
1.3678
1.2785
1.2263
1.2084
1.1974
1.1864
1.1713
1.1535
1.1397
1.1177
100% conversion
Integral
1.0000
5.1871
3.4841
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
(ppm)