

# **Silica-grafted lanthanum benzyl species: synthesis, characterization and catalytic applications.**

Tom Vancompernolle,<sup>†</sup> Andrea Valente,<sup>†,a</sup> Thomas Chenal,<sup>†</sup> Philippe Zinck,<sup>†</sup> Iker Del Rosal,<sup>‡</sup> Laurent Maron,<sup>‡</sup> Mostafa Taoufik,<sup>††</sup> Sjoerd Harder,<sup>¶</sup> Régis M. Gauvin<sup>†,\*</sup>

<sup>†</sup> Univ. Lille, CNRS, Centrale Lille, ENSCL, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France

<sup>‡</sup> Laboratoire de Physico-Chimie des Nano-Objets, CNRS UMR 5215, Université de Toulouse, INSA, UPS, 135 avenue de Rangueil, F-31077 Toulouse, France

<sup>††</sup> Université de Lyon, Univ. Lyon 1, CPE Lyon, CNRS UMR 5265, Laboratoire de Chimie Catalyse Polymères et Procédés (C2P2), Bat 308F, 43 Bd du 11 Novembre 1918, F-69616 Villeurbanne, France

<sup>¶</sup> Inorganic and Organometallic Chemistry, University Erlangen-Nürnberg, 91058 Erlangen, Germany

<sup>a</sup> : Current adress : Centro de Ciências Moleculares e Materiais, Departamento de Química e Bioquímica Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa, Portugal

E-mail : regis.gauvin@ensc-lille.fr

## **Supporting Information**

### **Table of contents**

Figure S1. GC trace from dimerization of 1-hexyne with <b>2</b>	S2
Figure S2. <sup>1</sup> H NMR spectrum of 7-methyleneundec-5-yne	S2
Figure S3. <sup>13</sup> C CP MAS NMR spectrum of polyethylene produced by <b>2</b>	S3
Figure S4. <sup>13</sup> C NMR signal for the C <sub>ipso</sub> atom in polystyrene obtained using <b>2</b> as an initiator	S3
Figure S5. <sup>1</sup> H NMR spectrum of poly(caprolactone)	S4
Figure S6. SEC trace of poly-ε-caprolactone obtained with <b>2</b>	S5

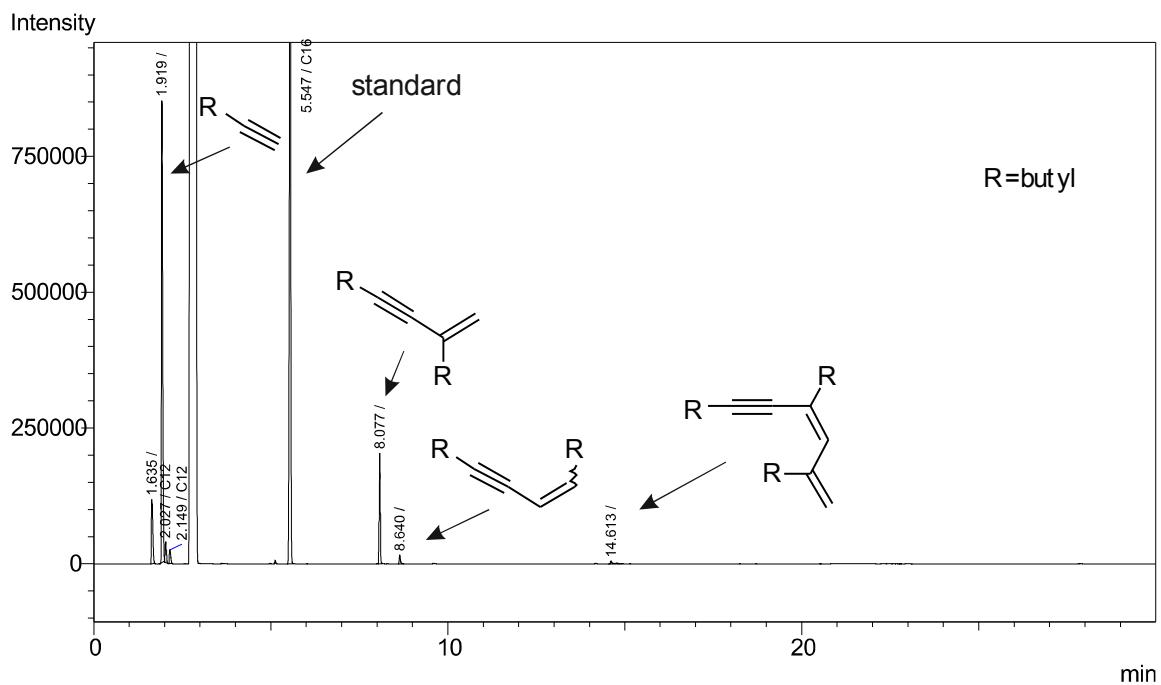


Figure S1 GC trace from dimerization of 1-hexyne with **2**

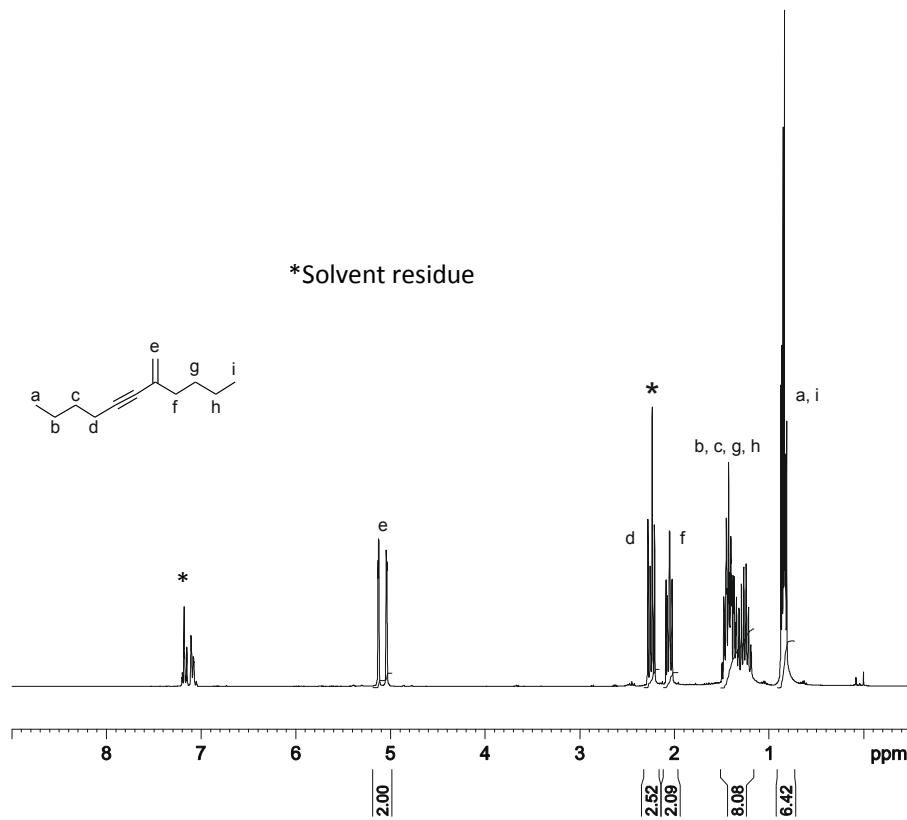


Figure S2.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{C}_7\text{D}_8$ ) of 7-methyleneundec-5-yne

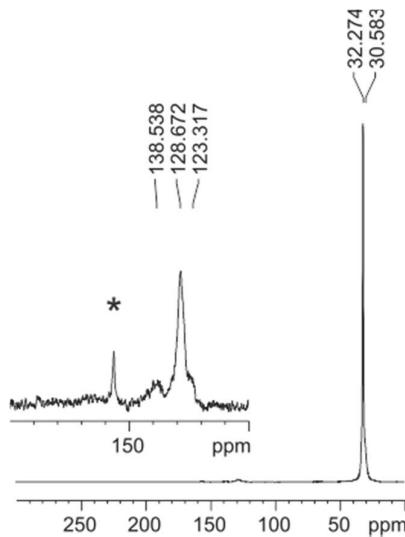


Figure S3.  $^{13}\text{C}$  CP MAS NMR spectrum (100.6 MHz) of polyethylene produced by **2**. \*: spinning side band. Inset shows the presence of Ph end-groups from benzyl initiating moieties.

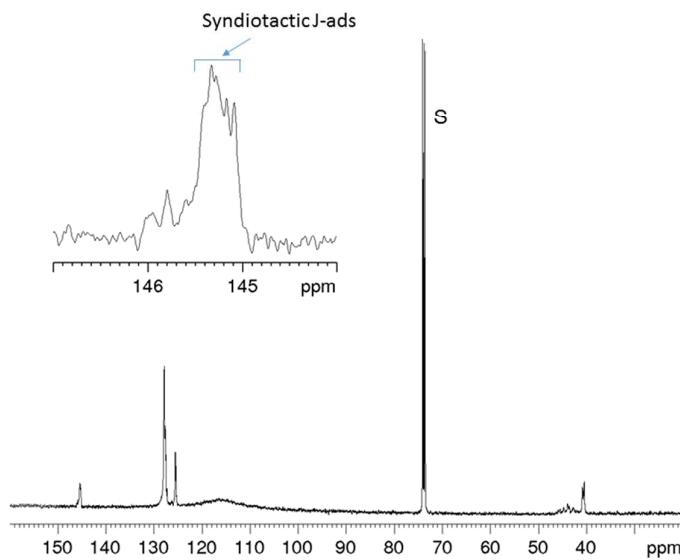


Figure S4.  $^{13}\text{C}$  NMR signal for the  $\text{C}_{\text{ipso}}$  atom in polystyrene obtained by polymerization using **2** as an initiator (100.6 MHz,  $\text{C}_2\text{D}_2\text{Cl}_4$ , 363 K). S: solvent signal. For assignments of the J-ads see reference 1.

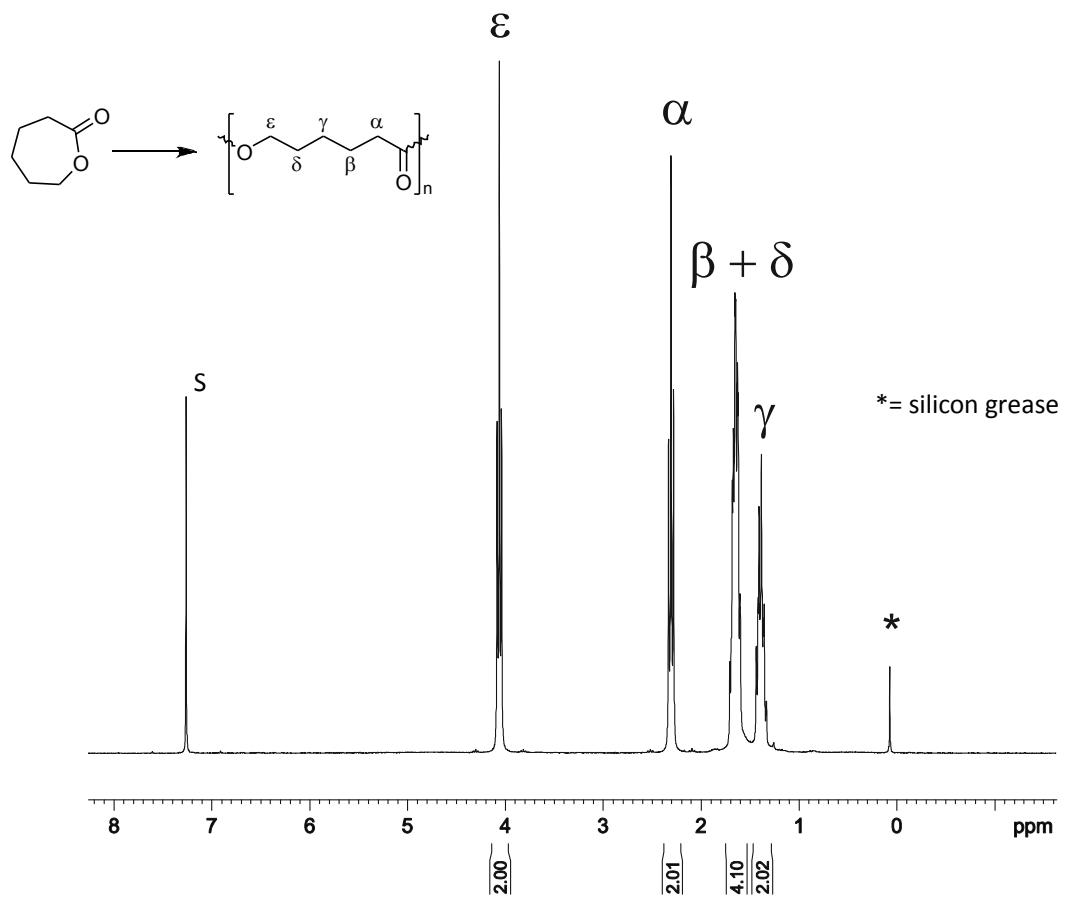


Figure S5.  $^1\text{H}$  NMR spectrum (300 MHz,  $\text{CDCl}_3$ ) of poly- $\epsilon$ -(caprolactone) produced by **2**

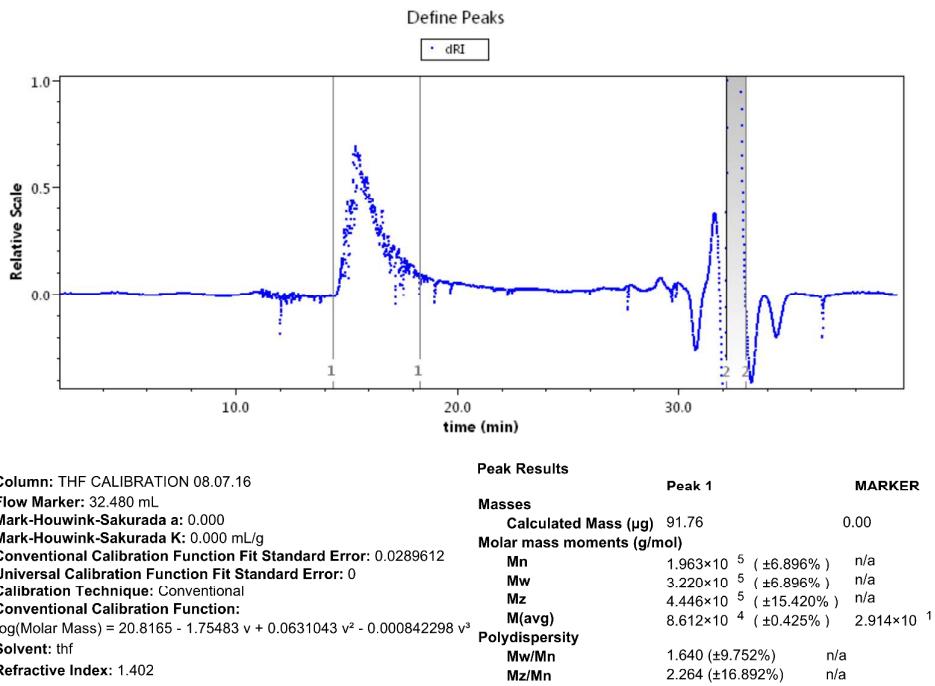


Figure S6. SEC trace of poly- $\epsilon$ -caprolactone obtained with 2

### Reference:

- 1) F. Feil, S. Harder, *Macromolecules* **2003**, *36*, 3446-3448.