Supplementary Information

Monodisperse oligo(ε-caprolactones) with terpenes and alkyl end-groups: synthesis, isolation, characterization, and antibacterial activity

María Guadalupe Ortiz-Aldaco,[a] Miriam Estévez,[b] Beatriz Liliana España-Sánchez,[c] José Bonilla-Cruz,[d] Eloy Rodríguez-deLeón,[e] and José E. Báez[a]*

[a] University of Guanajuato (UG), Department of Chemistry, Noria Alta S/N, Col. Noria Alta, Guanajuato, Gto. México, 36050.

[b] Universidad Nacional Autonoma de Mexico (UNAM), Centro de Física Aplicada y Tecnología Avanzada (CFATA), Boulevard Juriquilla 3001, Querétaro, Qro. México, 76230.

[c] Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S.C. (CIDETEQ), Santiago de Queretaro, Qro. México, 76703.

[d] Centro de Investigación en Materiales Avanzados (CIMAV), Unidad Monterrey, Polymer Science, Alianza Norte 202, Nueva Autopista Monterrey-Aeropuerto Km 10, Apodaca, N.L. México, 66628.

[e] Autonomous University of Querétaro (UAQ), Posgrado en Ciencias Químico Biológicas, Faculty of Chemistry, Queretaro, Qro. México, 76010.

To whom correspondence should be addressed: José E. Báez, e-mail: jebaez@ugto.mx

Table of Contents

Table S1 Hydrolytic degradation of initiators (farnesol and 1-pentadecanol), monodisperse monomers (C_{15}F-CL_1 and C_{15}1P-CL_1), and monodisperse dimers (C_{15}F-CL_2 and C_{15}1P-CL_2).

Sample	T_{d1} (°C)	Weight loss (%)	T_{d2} (°C)	Weight loss (%)	T_{d3} (°C)	Weight loss (%)
Farnesol	296	42	368	83	—	—
1-pentadecanol	250	83	—	—	—	—
C_{15}F-CL_1	114	3	386	31	399	70
C_{15}1P-CL_1	316	54	393	91	—	—
C_{15}F-CL_2	132	2	298	23	410	67
C_{15}1P-CL_2	369	47	410	80	—	—

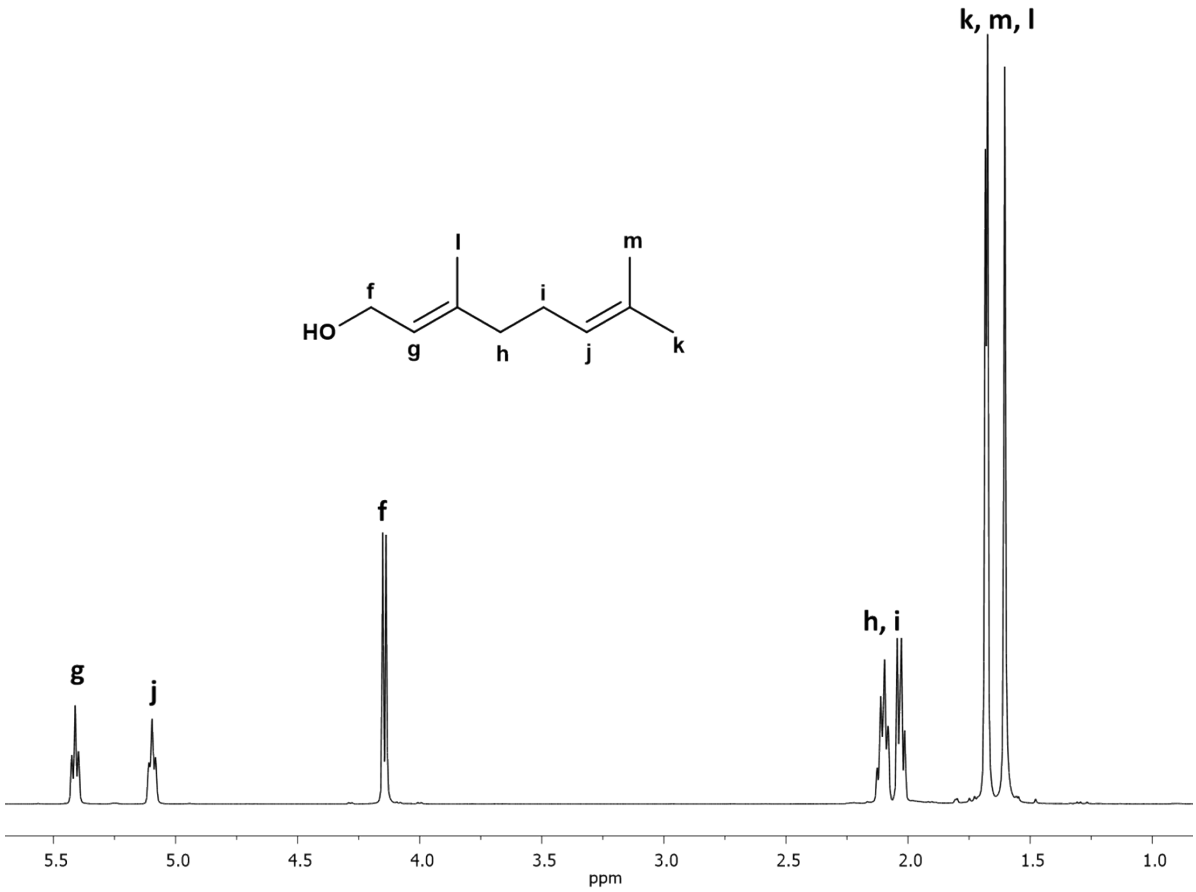

Fig. S1 ^{1}H NMR (500 MHz) spectrum of geraniol (C_{10}) in $CDCl_3$ at 40 °C.

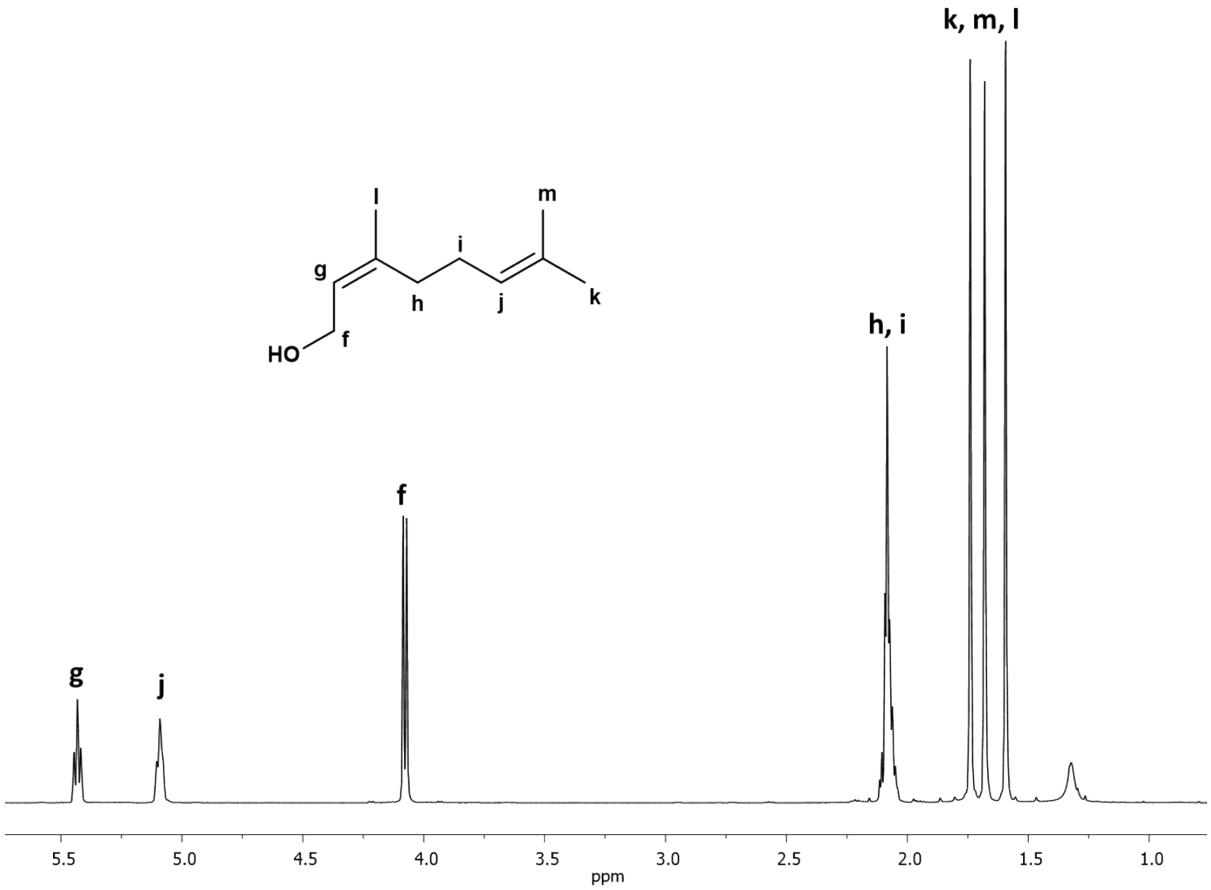

Fig. S2 ^{1}H NMR (500 MHz) spectrum of nerol (C_{10}) in $CDCl_3$ at 40 °C.

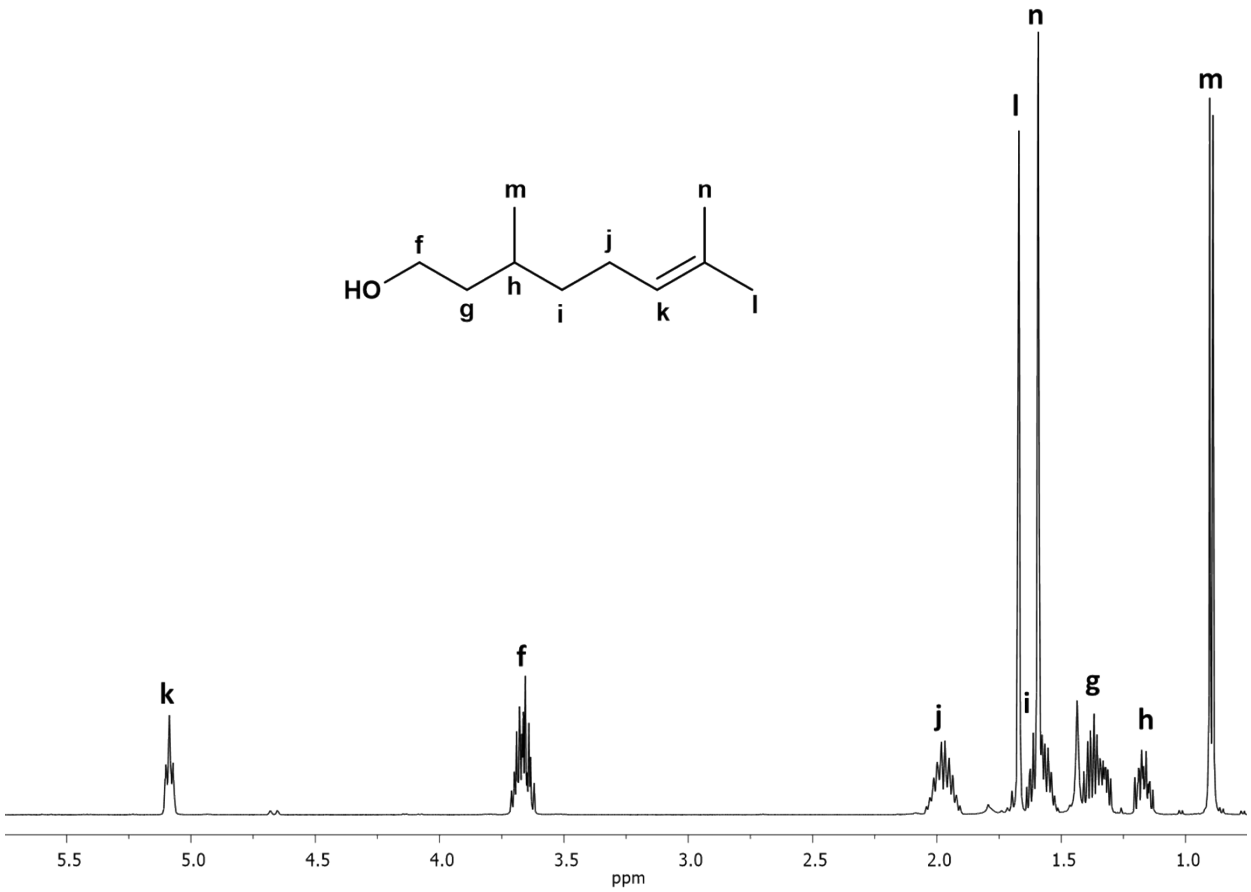

Fig. S3 ^{1}H NMR (500 MHz) spectrum of *β*-citronellol (C_{10}) in $CDCl_3$ at 40 °C.

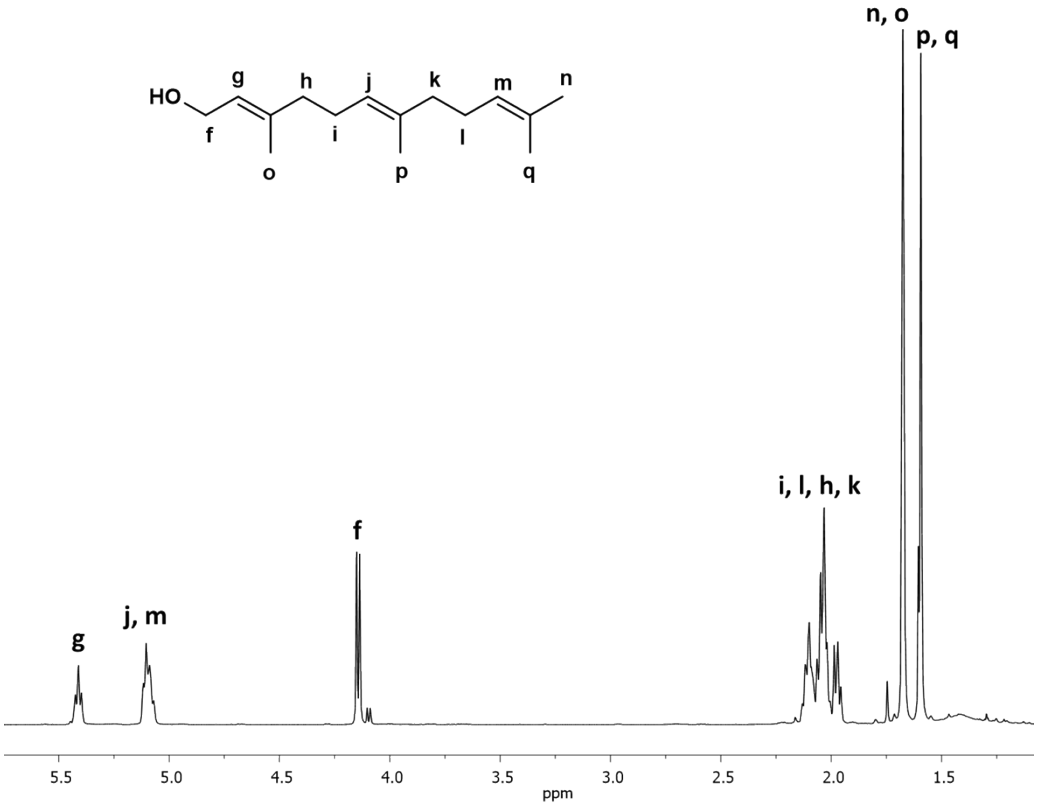

Fig. S4 ^{1}H NMR (500 MHz) spectrum of farnesol (C_{15}) in $CDCl_3$ at 40 °C.

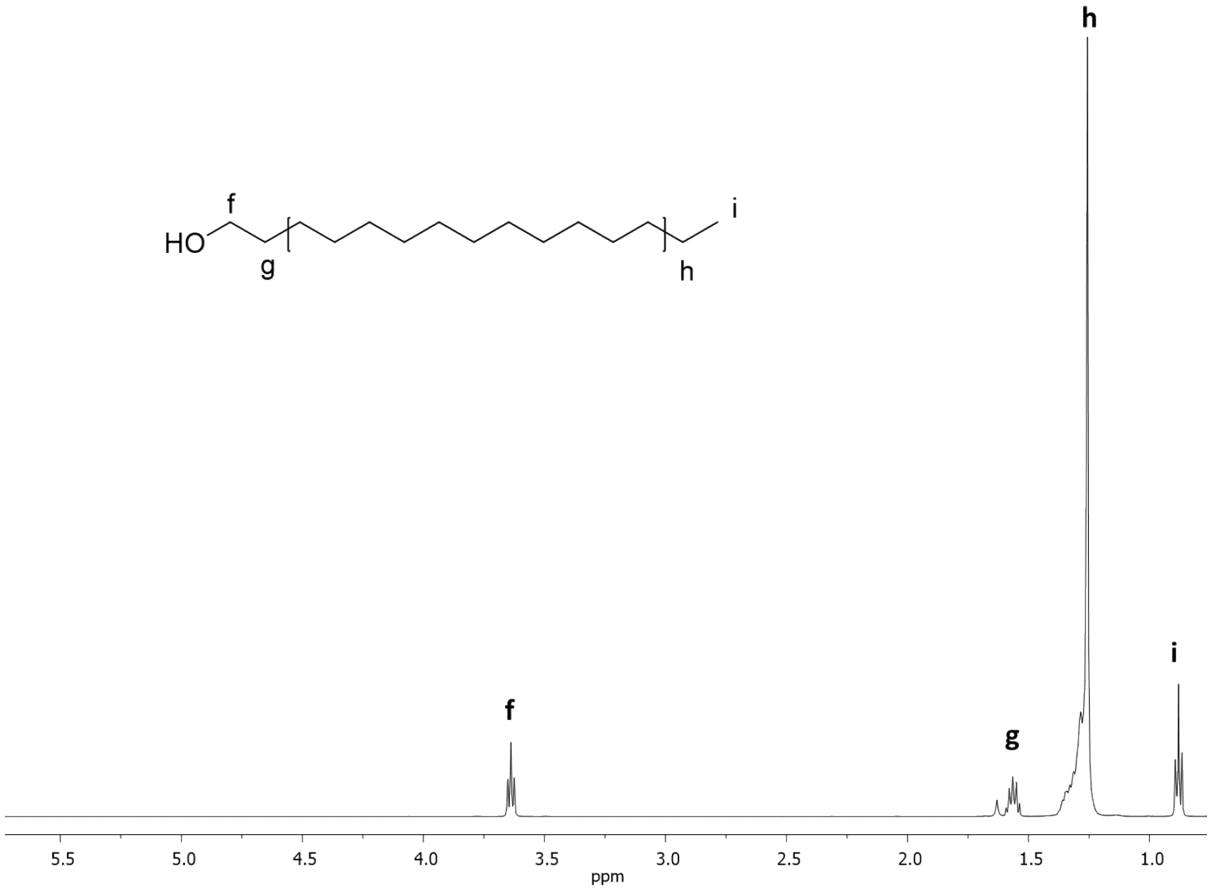

Fig. S5 ^{1}H NMR (500 MHz) spectrum of 1-pentadecanol (C_{15}) in $CDCl_3$ at 40 °C.

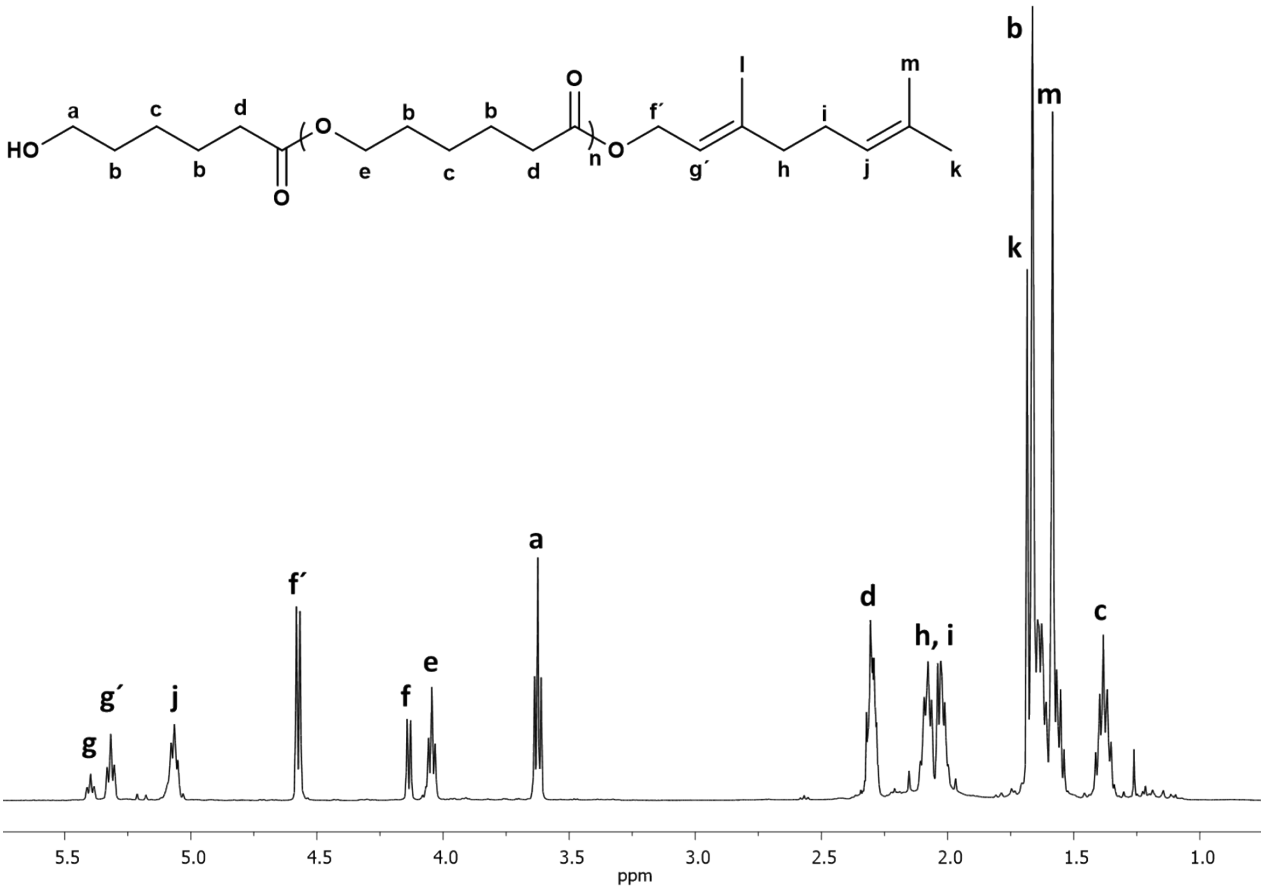

Fig. S6 ^{1}H NMR (500 MHz) spectrum of oligo(CL) synthetized using geraniol as initiator (C_{10}G-PCL, Table 1) in $CDCl_3$ at 40 °C.

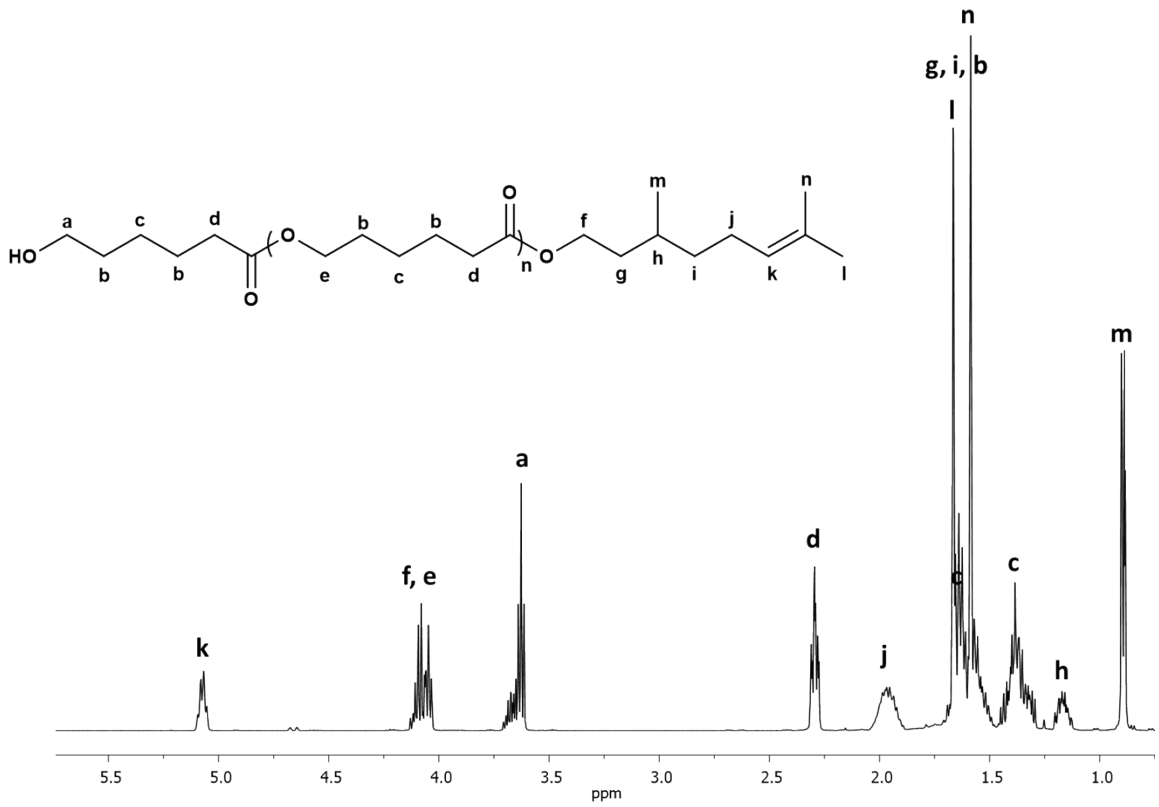

Fig. S7 ^{1}H NMR (500 MHz) spectrum of oligo(CL) synthetized using *β*-citronellol as initiator (C_{10}C-PCL, Table 1) in $CDCl_3$ at 40 °C.

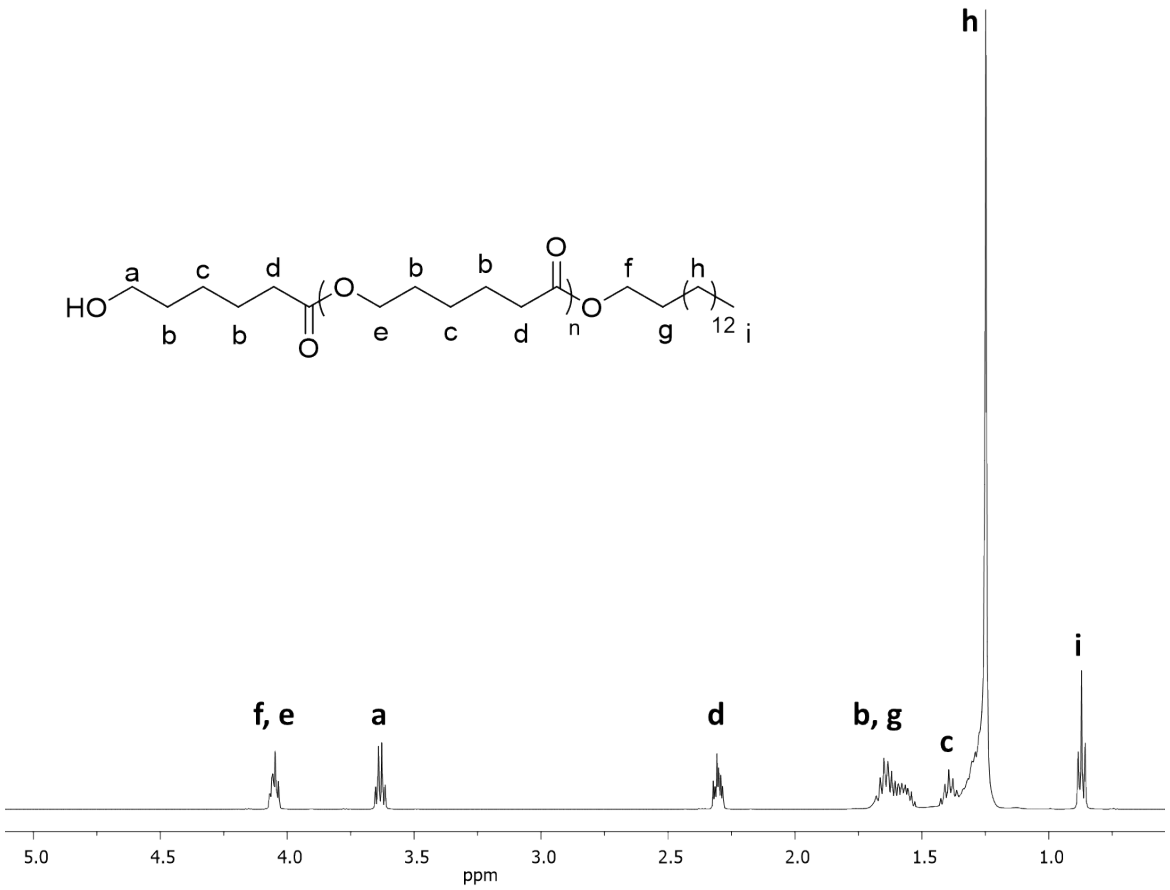

Fig. S8 ^{1}H NMR (500 MHz) spectrum of oligo(CL) synthetized using 1-pentadecanol as initiator (C_{15}1P-PCL, Table 1) in $CDCl_3$ at 40 °C.

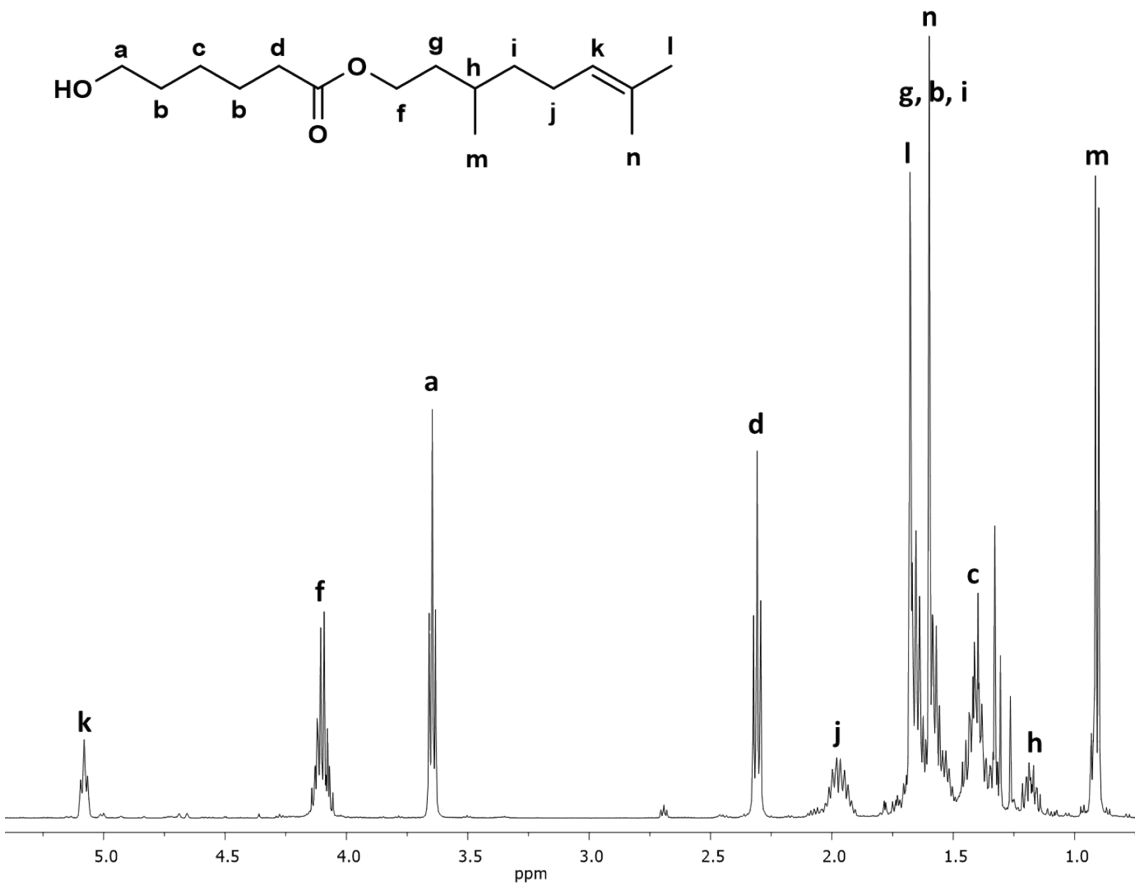

Fig. S9 ^{1}H NMR (500 MHz) spectrum of a monomer derived from *β*-citronellol as initiator $C_{10}C\text{-}CL_1$ (monodisperse specie, Table 2) in $CDCl_3$ isolated by FCC from $C_{10}C\text{-}PCL$ (Table 1).

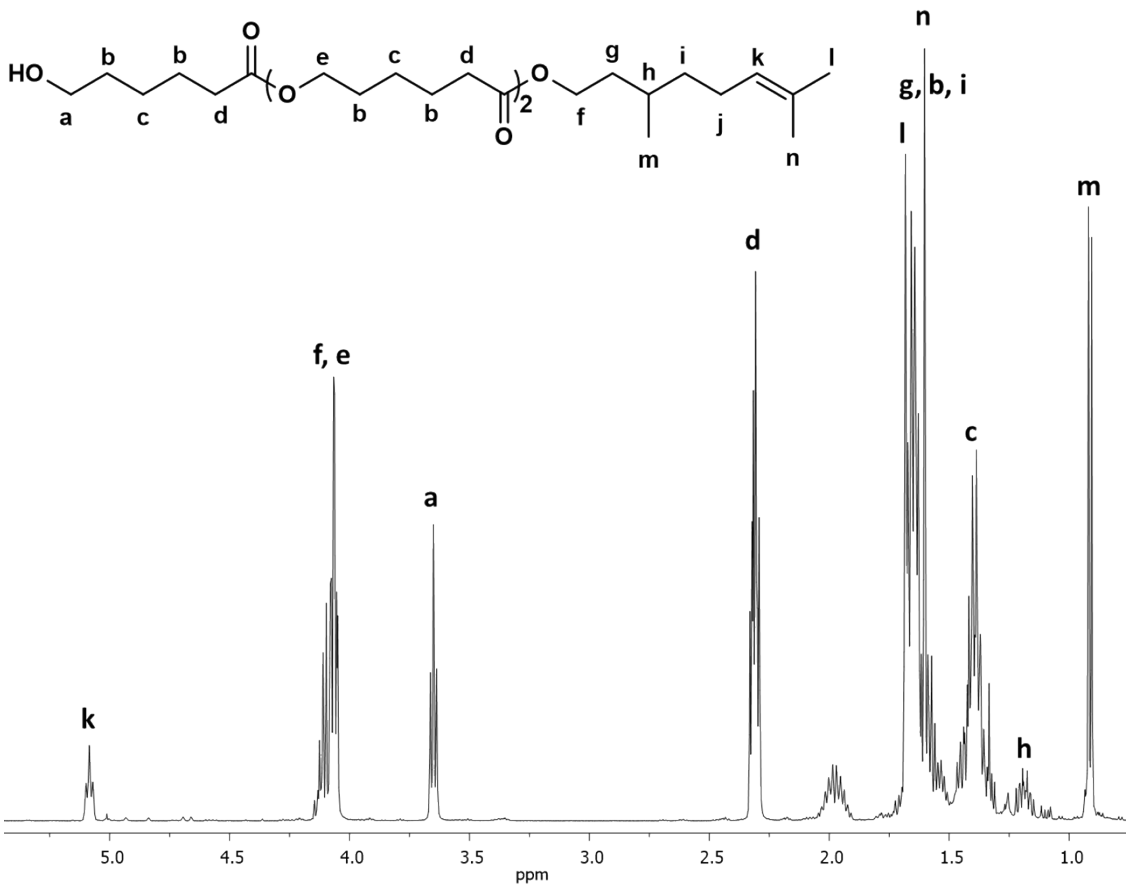

Fig. S10 ^{1}H NMR (500 MHz) spectrum of a trimer derived from *β*-citronellol as initiator $C_{10}C\text{-}CL_3$ (monodisperse specie, Table 2) in $CDCl_3$ isolated by FCC from $C_{10}C\text{-}PCL$ (Table 1).

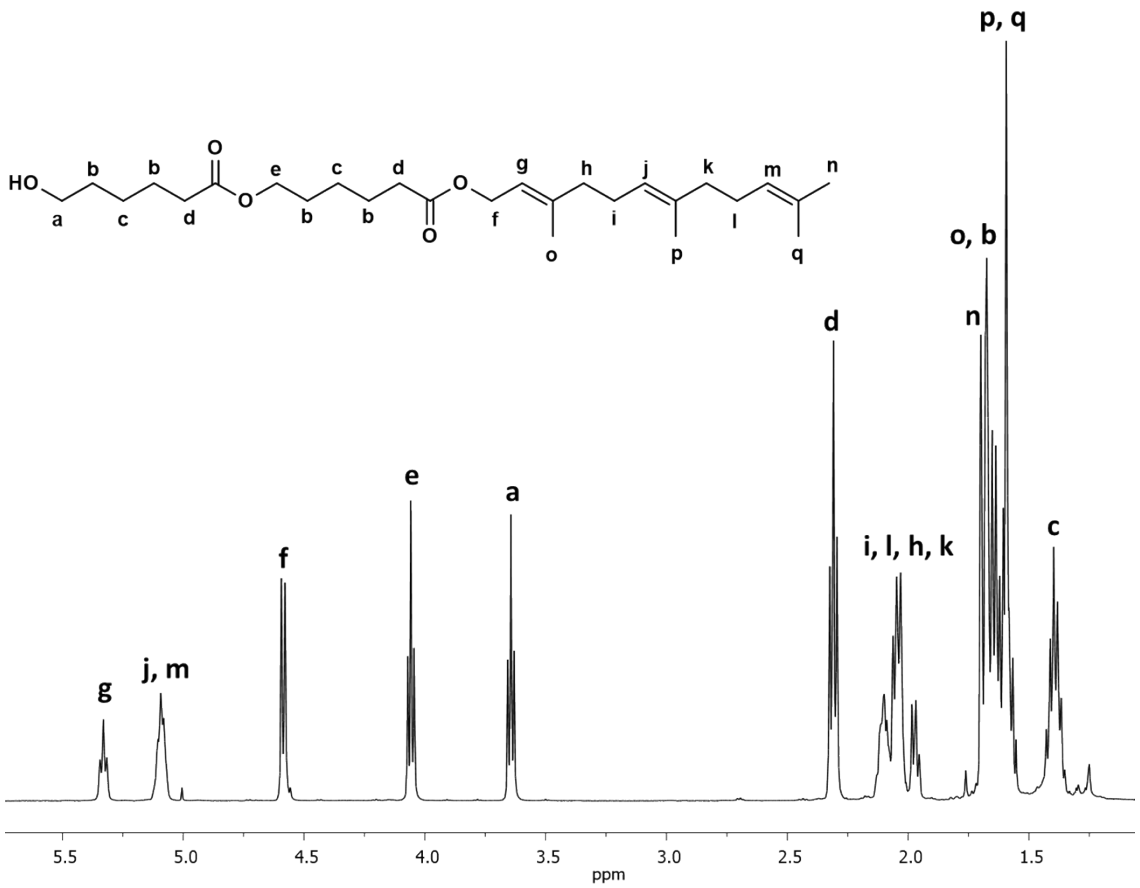

Fig. S11 ^{1}H NMR (500 MHz) spectrum of a dimer derived from farnesol as initiator $C_{15}F\text{-}CL_2$ (monodisperse specie, Table 2) in $CDCl_3$ isolated by FCC from $C_{15}F$-PCL (Table 1).

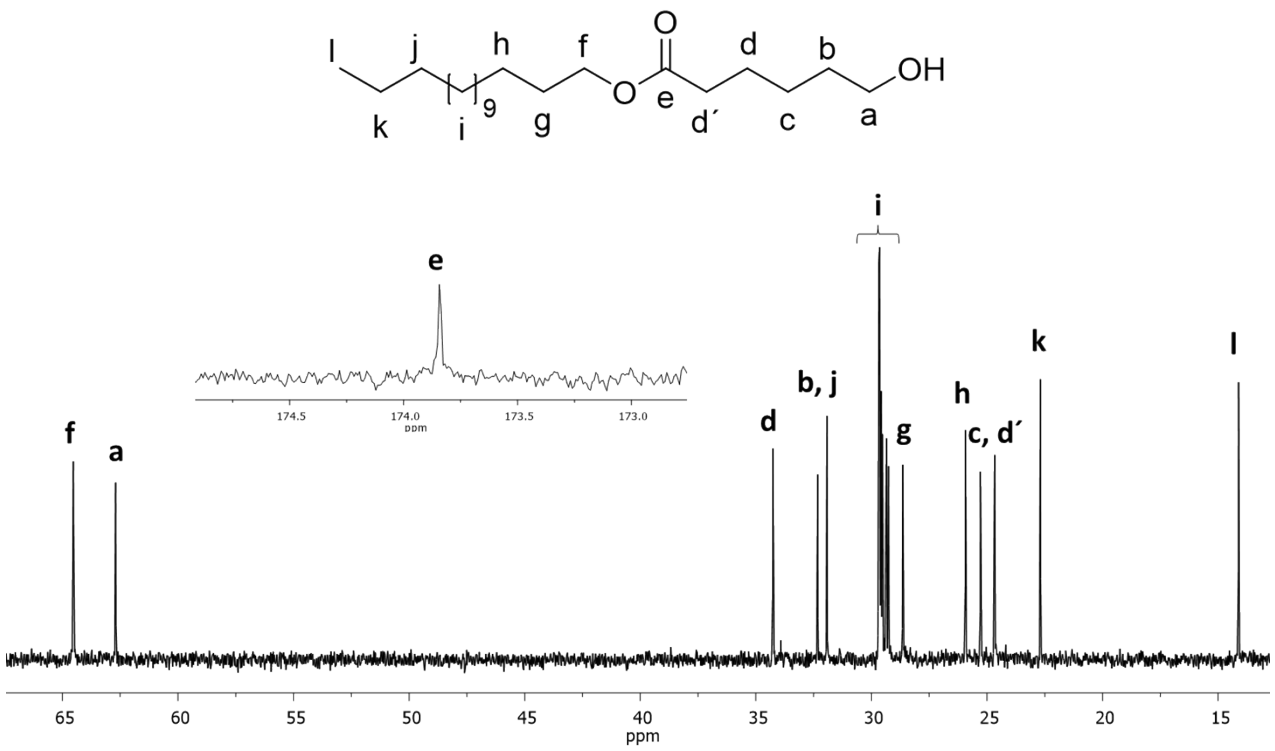

Fig. S12 ^{13}C NMR (500 MHz) spectrum of a monomer derived from 1-pentadecanol as initiator $C_{15}1P\text{-}CL_1$ (monodisperse specie, Table 2) in $CDCl_3$ isolated by FCC from $C_{15}1P\text{-}PCL$ (Table 1).

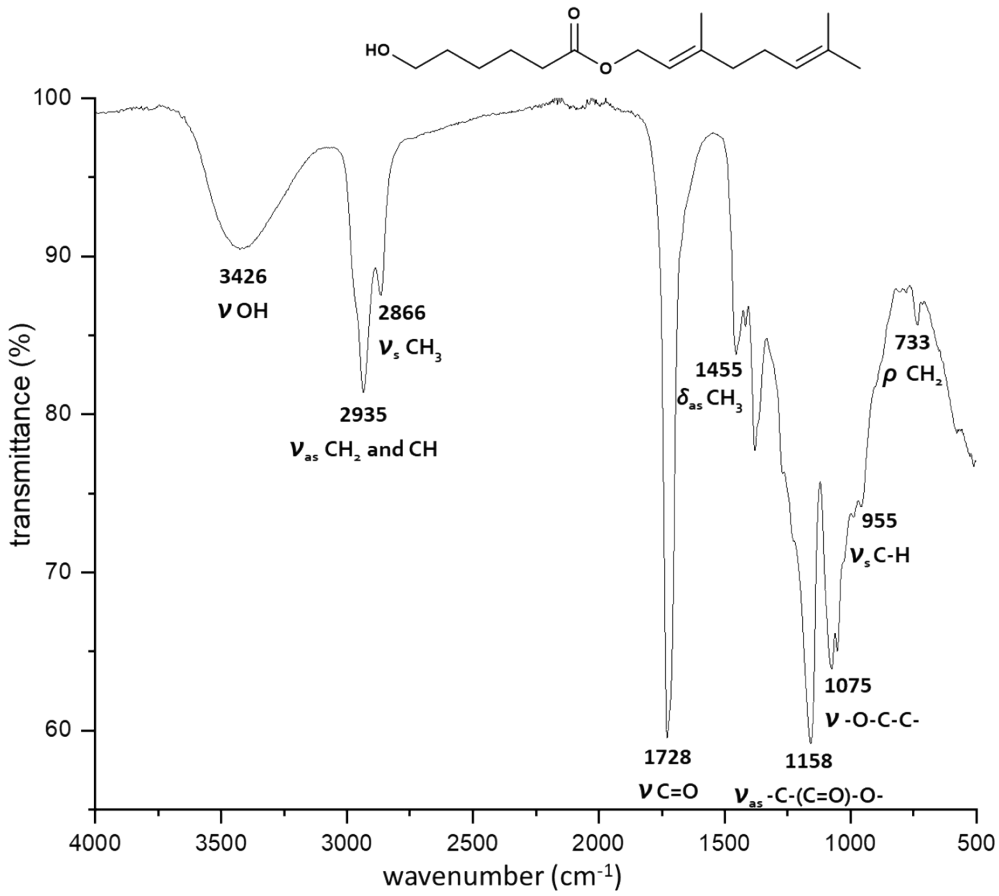

Fig. S13 FT-IR spectrum and assignment of bands from monodisperse monomer $C_{10}G\text{-}CL_1$.

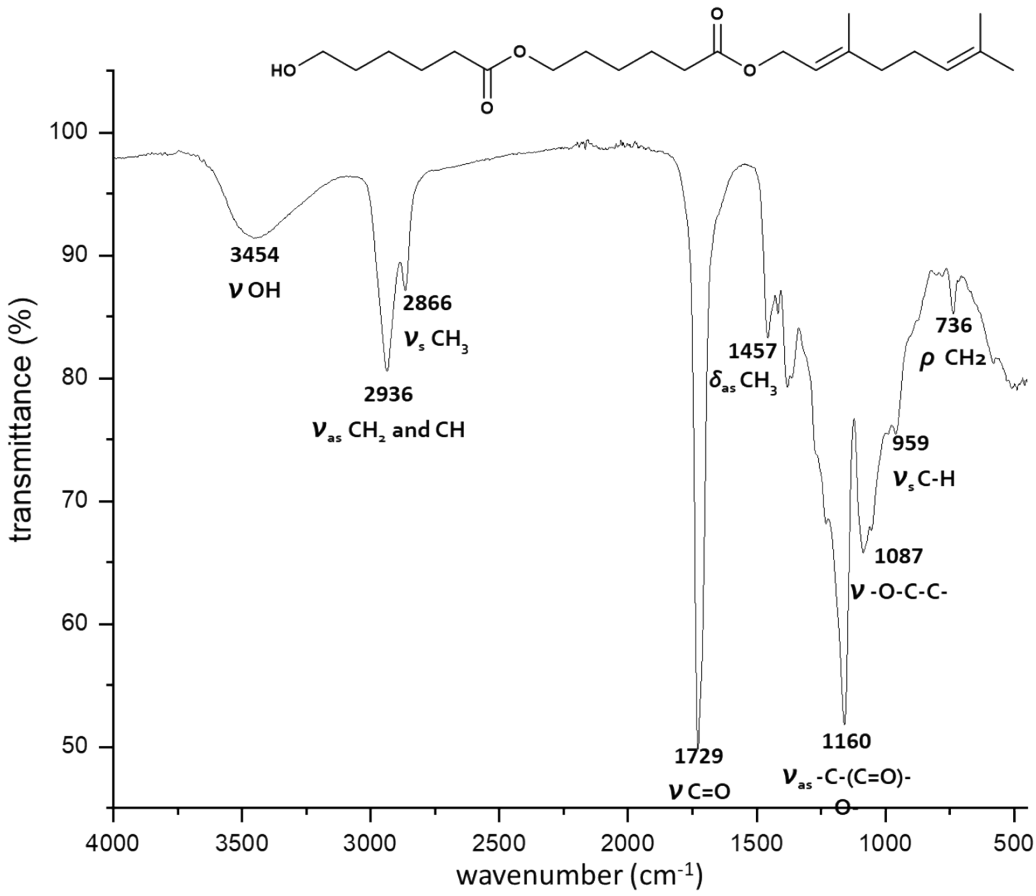

Fig. S14 FT-IR spectrum and assignment of bands from monodisperse dimer $C_{10}G$-CL_2.

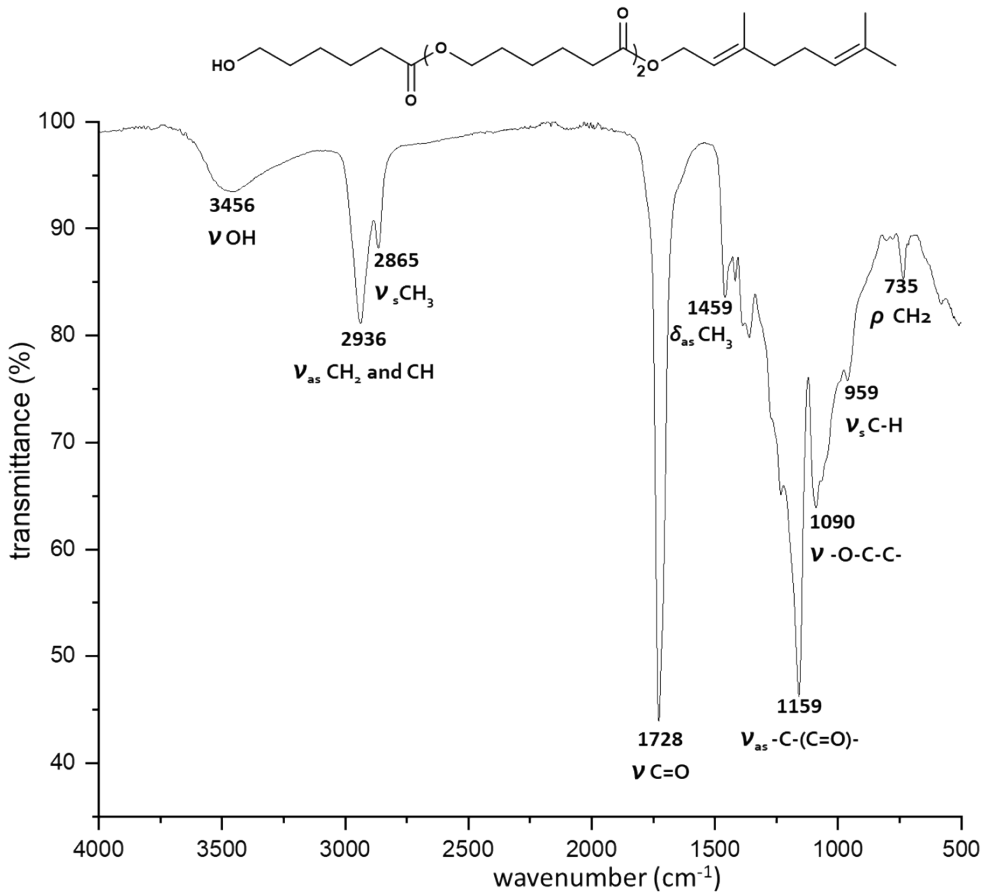

Fig. S15 FT-IR spectrum and assignment of bands from monodisperse trimer $C_{10}G$-CL_3.

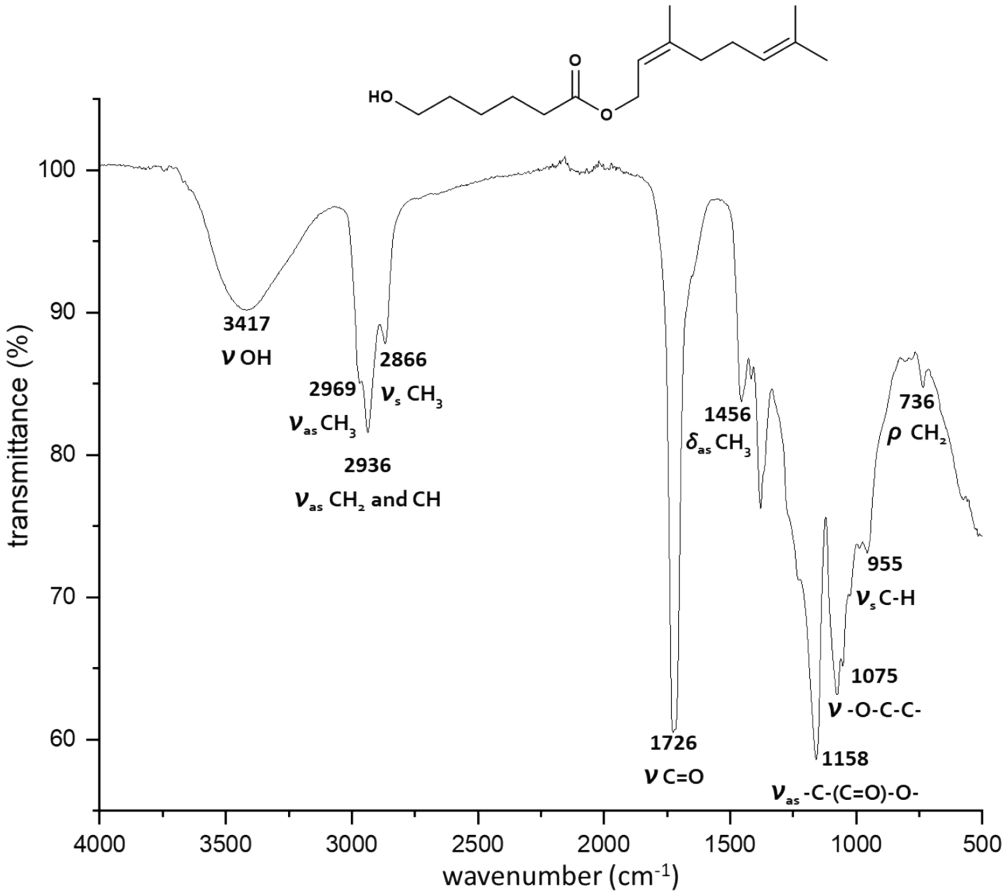

Fig. S16 FT-IR spectrum and assignment of bands from monodisperse monomer $C_{10}N\text{-}CL_1$.

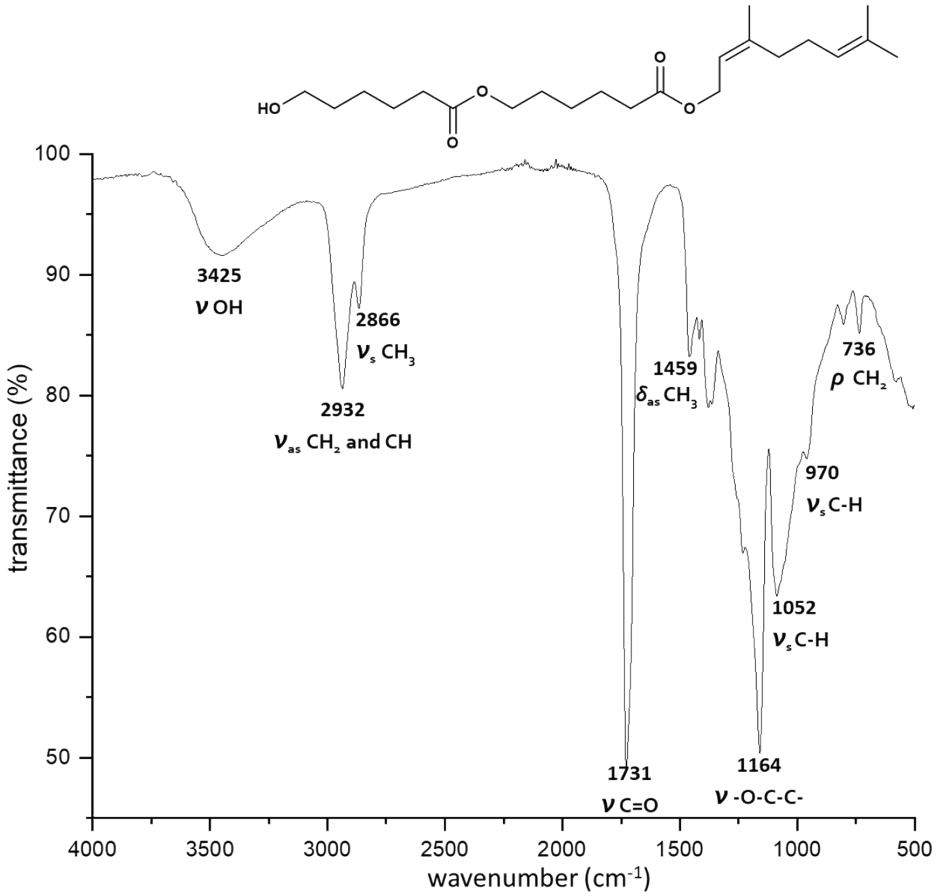

Fig. S17 FT-IR spectrum and assignment of bands from monodisperse dimer $C_{10}N$-CL_2.

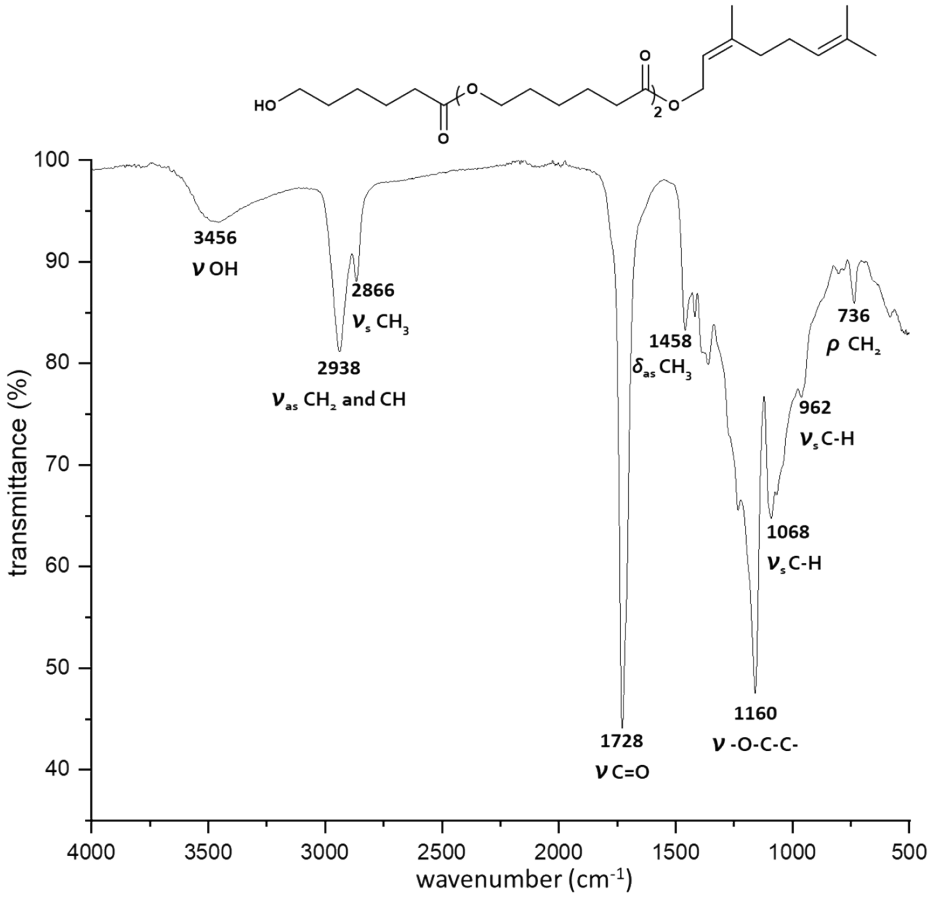

Fig. S18 FT-IR spectrum and assignment of bands from monodisperse trimer $C_{10}N$-CL_3.

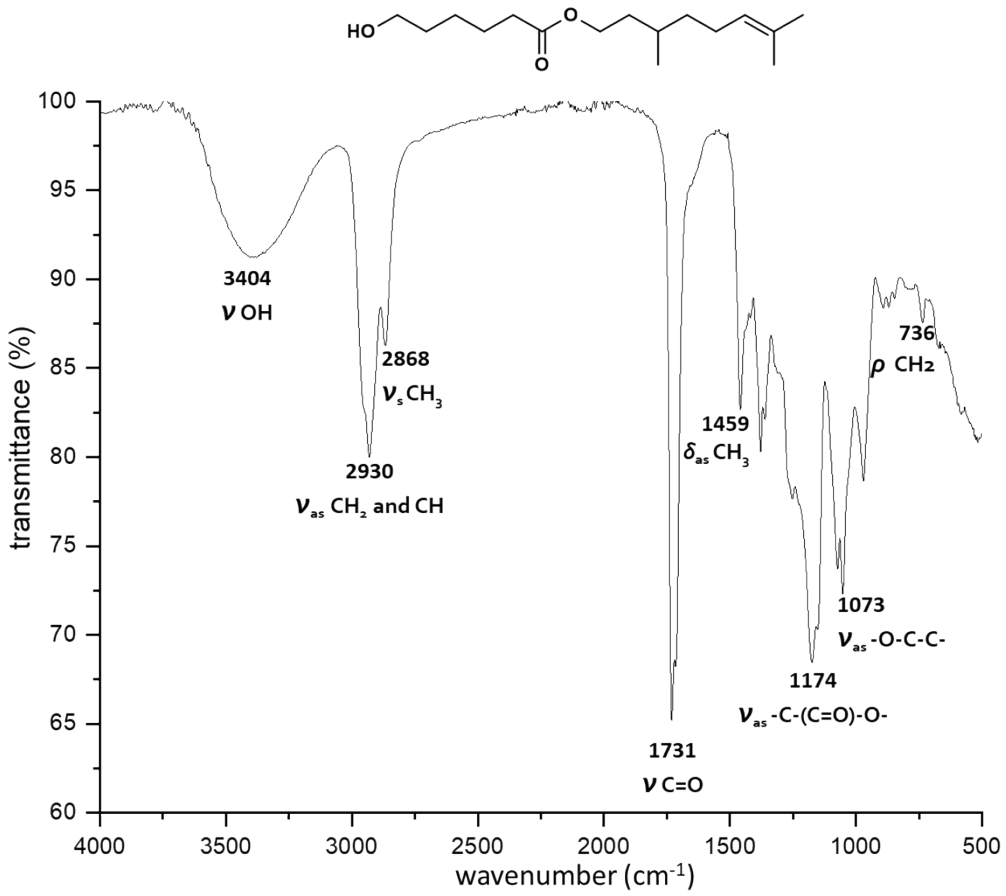

Fig. S19 FT-IR spectrum and assignment of bands from monodisperse monomer $C_{10}C\text{-}CL_1$.

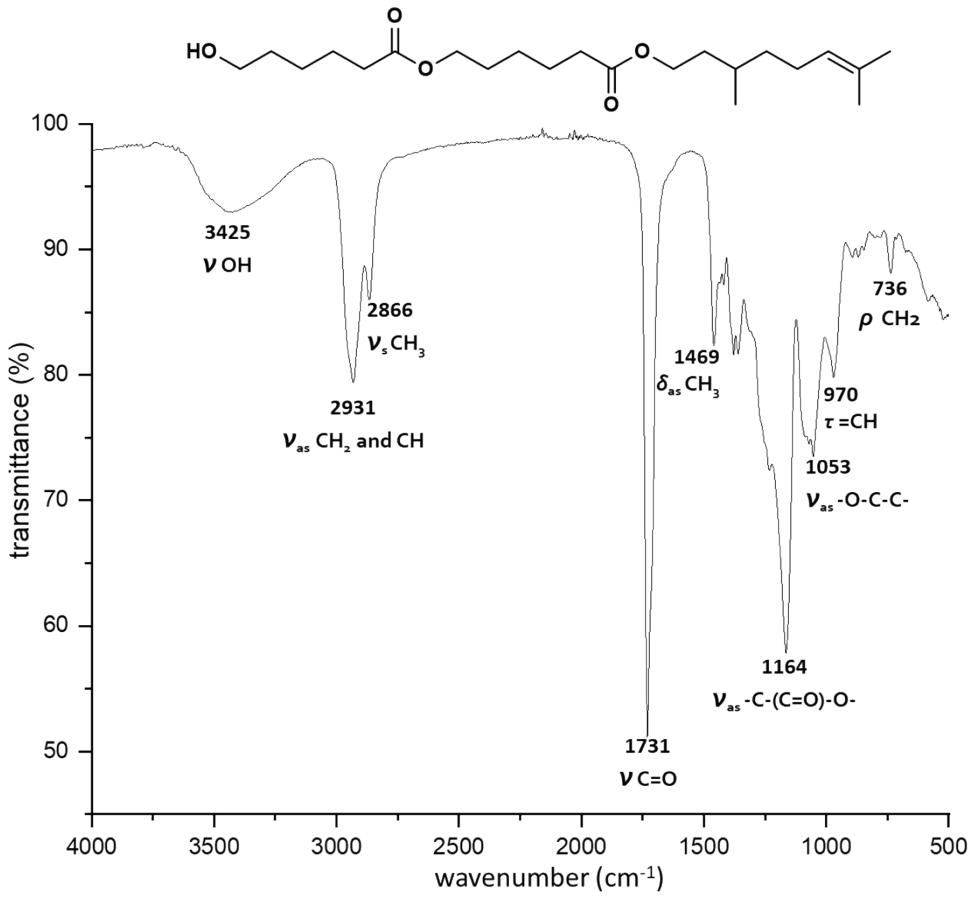

Fig. S20 FT-IR spectrum and assignment of bands from monodisperse dimer $C_{10}C$-CL_2.

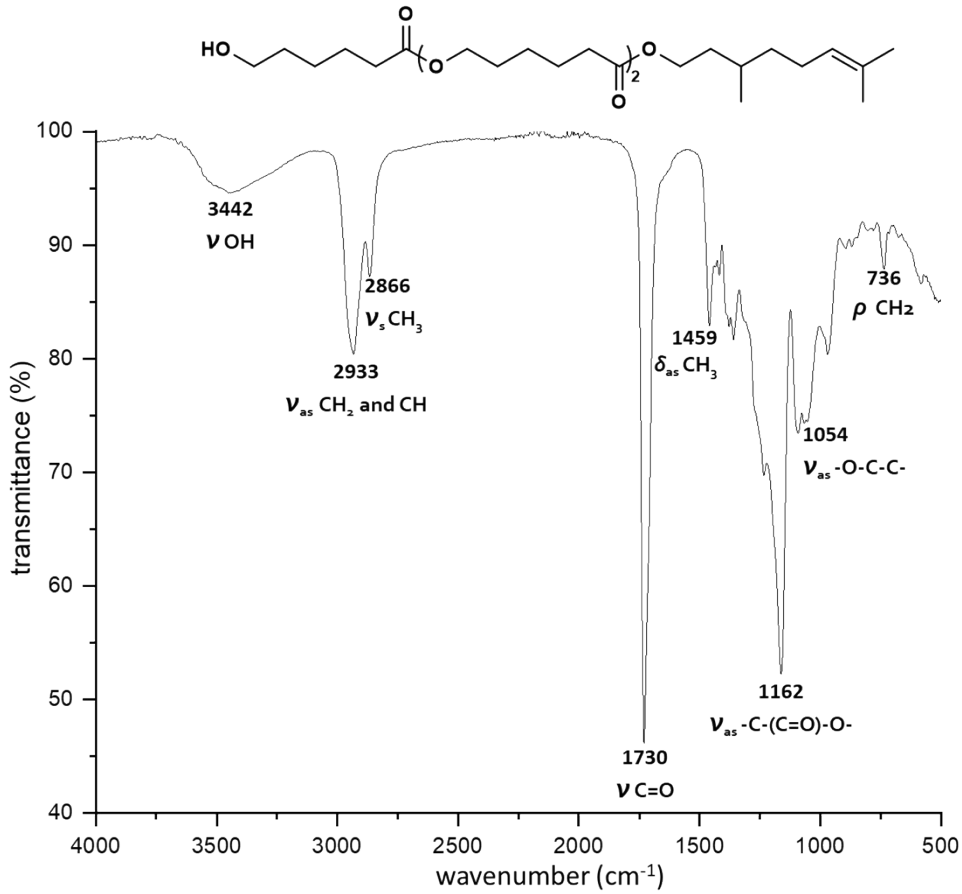

Fig. S21 FT-IR spectrum and assignment of bands from monodisperse trimer $C_{10}C$-CL_3.

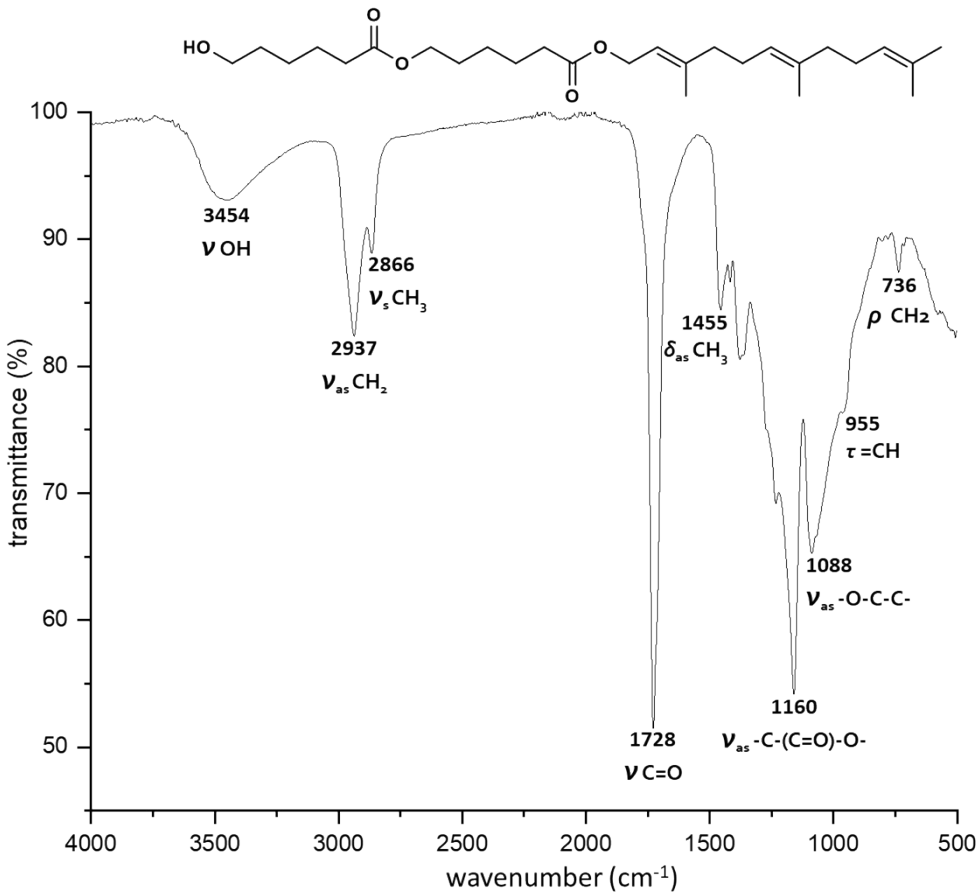

Fig. S22 FT-IR spectrum and assignment of bands from monodisperse dimer $C_{15}F$-CL_2.

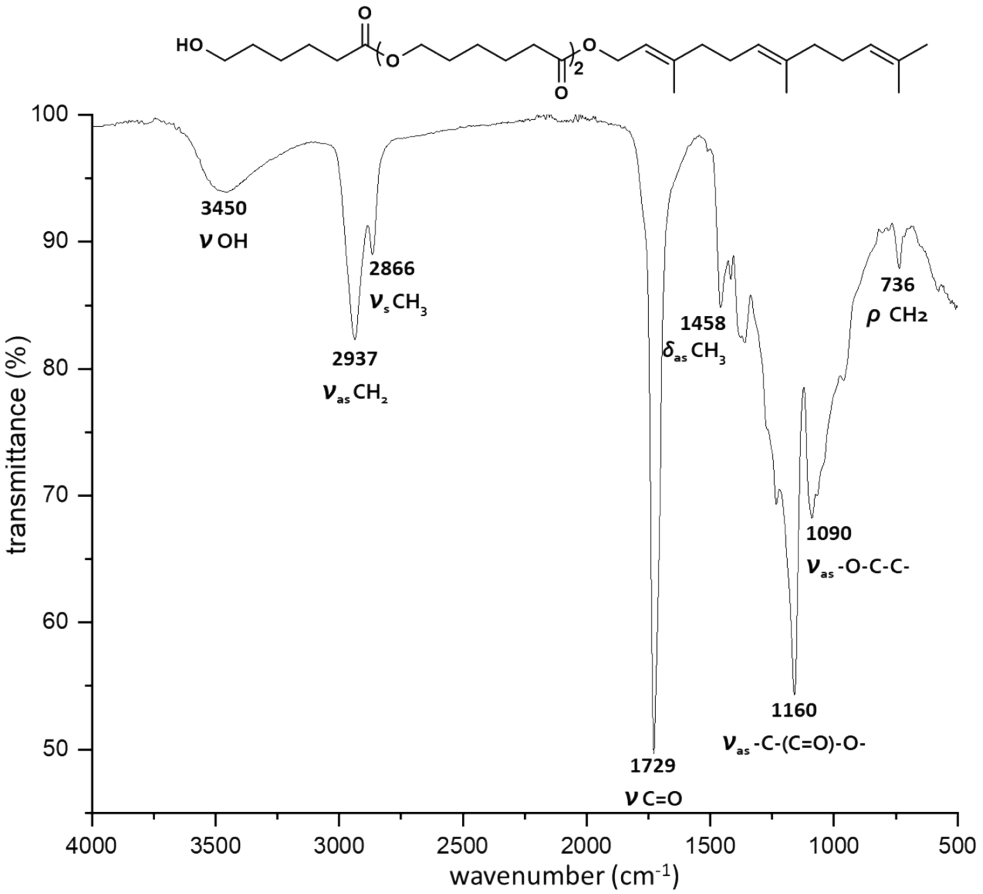

Fig. S23 FT-IR spectrum and assignment of bands from monodisperse trimer $C_{15}F$-CL_3.

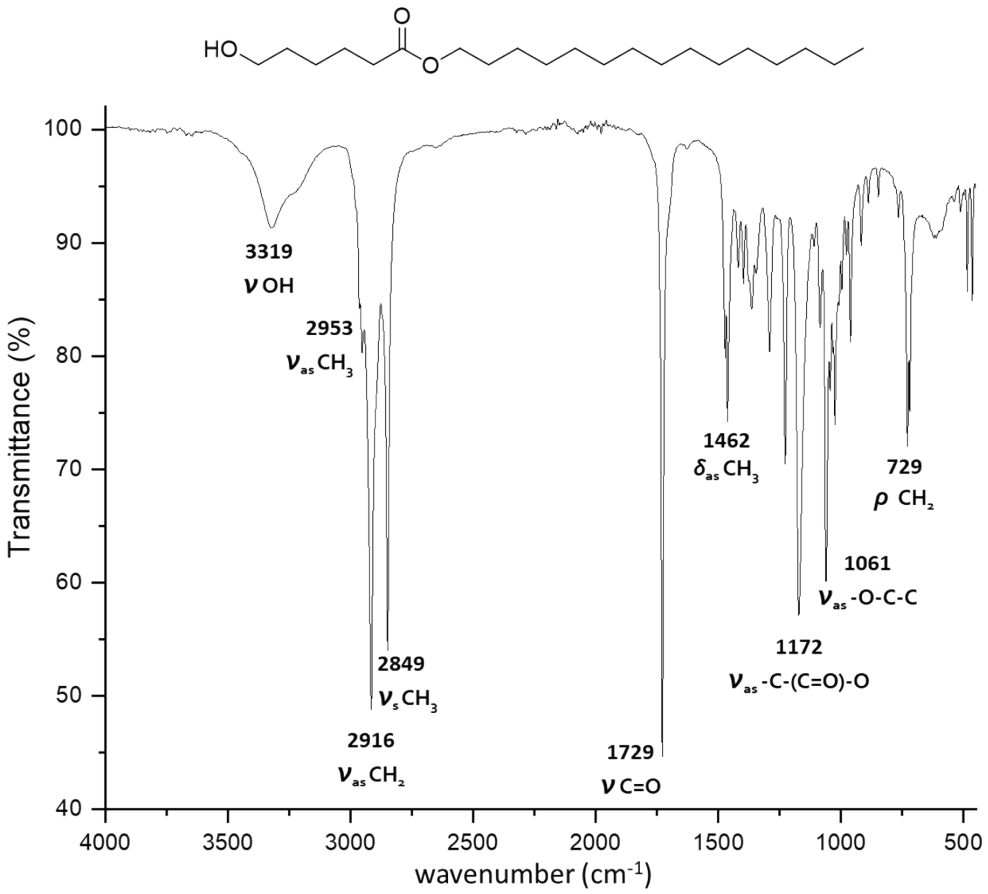

Fig. S24 FT-IR spectrum and assignment of bands from monodisperse monomer $C_{15}1P\text{-}CL_1$.

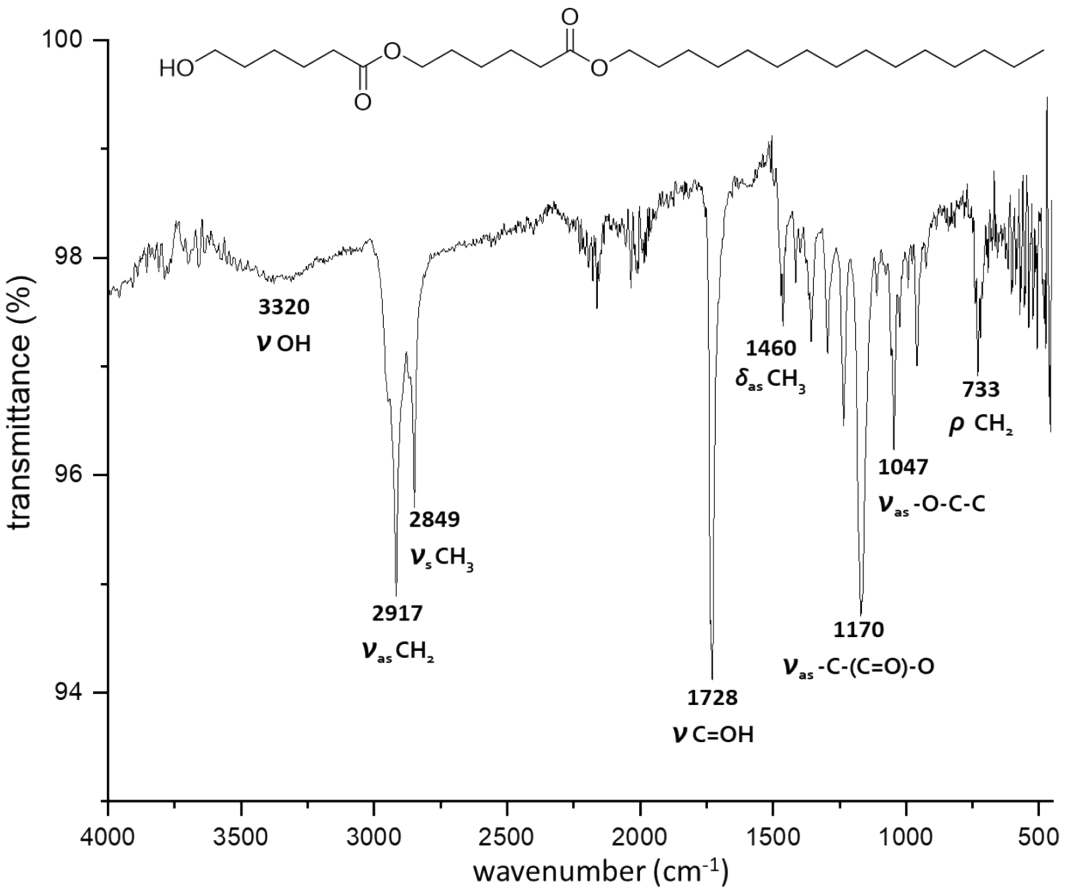

Fig. S25 FT-IR spectrum and assignment of bands from monodisperse dimer C_{15}1P-CL_2.

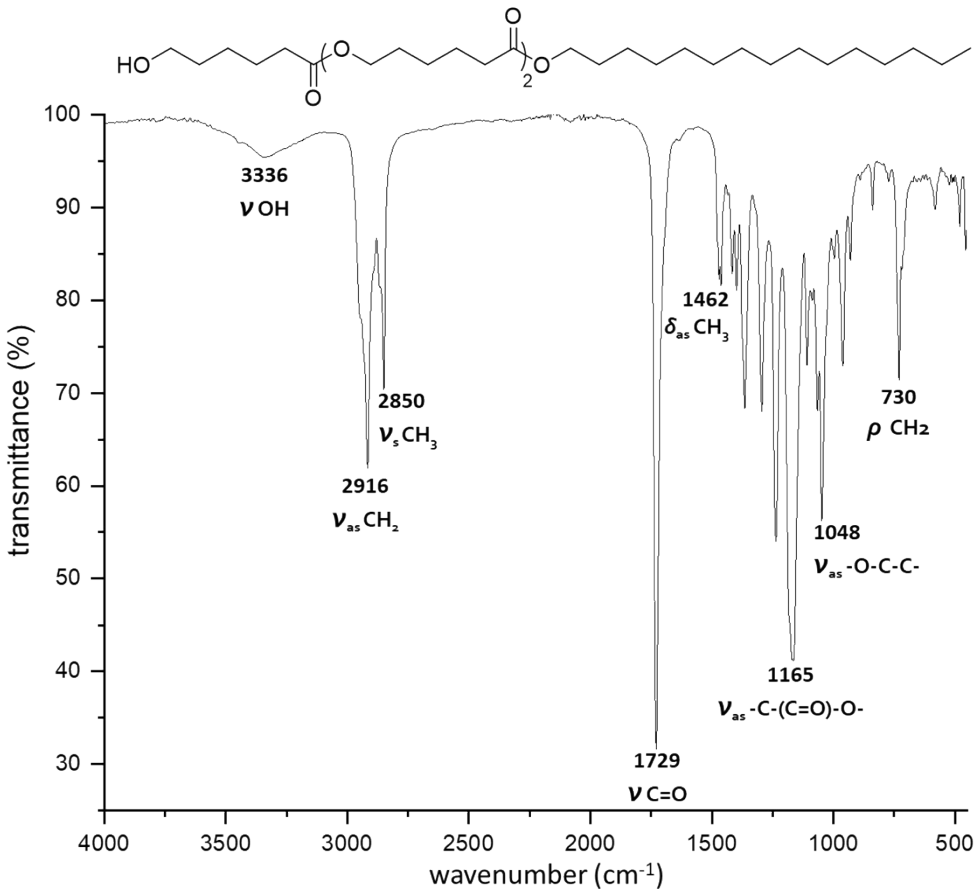

Fig. S26 FT-IR spectrum and assignment of bands from monodisperse trimer C_{15}1P-CL_3.

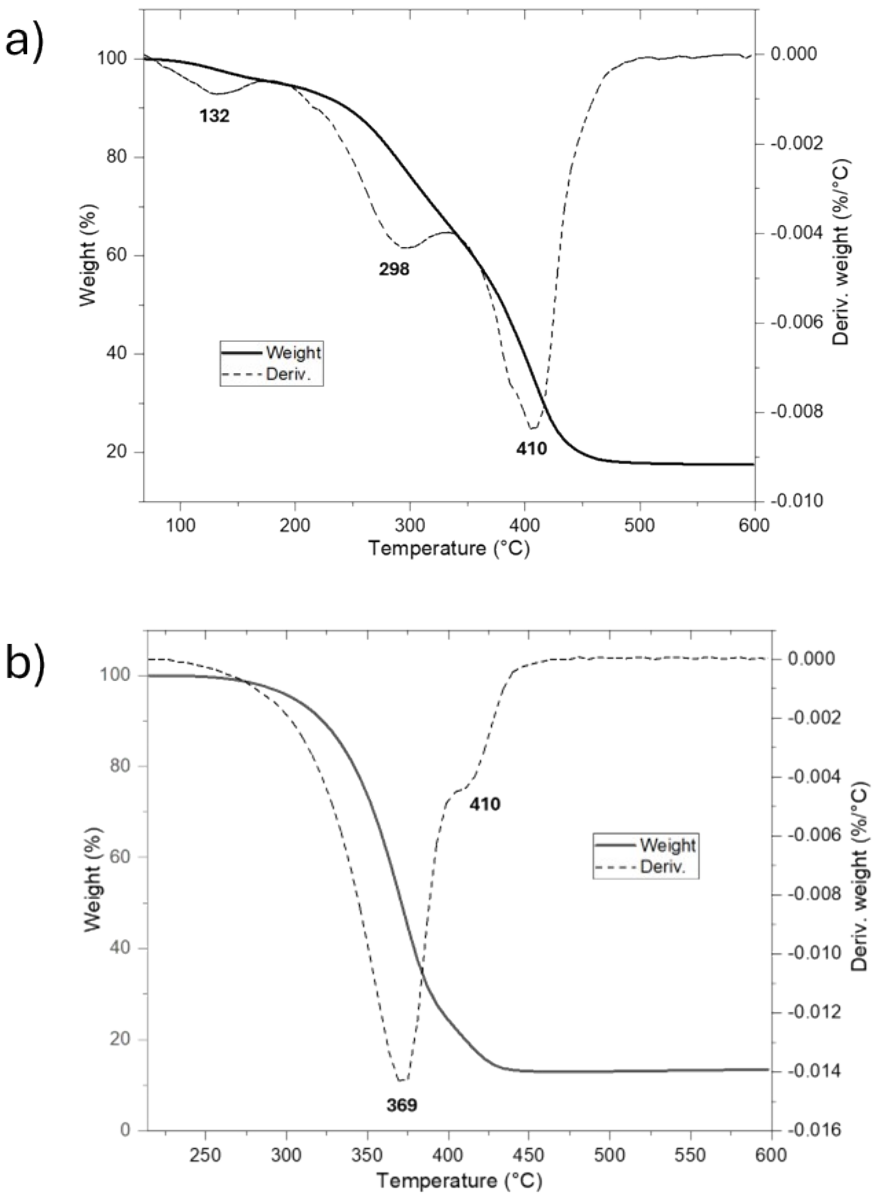

Fig. S27 Thermal degradation (TGA) of a) C_{15}F-CL_2 and b) C_{15}1P-CL_2.