

TBD-catalyzed anionic ring-opening polymerization of hexamethylcyclotrisiloxane: a new route for controlled synthesis of PDMS

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1. First order kinetic plots

Monomer conversion was determined by ^1H NMR and apparent polymerization rates (k_{app}) have been determined according to equation (1).

$$\ln\left(\frac{[M]_0}{[M]}\right) = k_{app}t \quad (1)$$

2. Trimethylsilanol initiated ROP

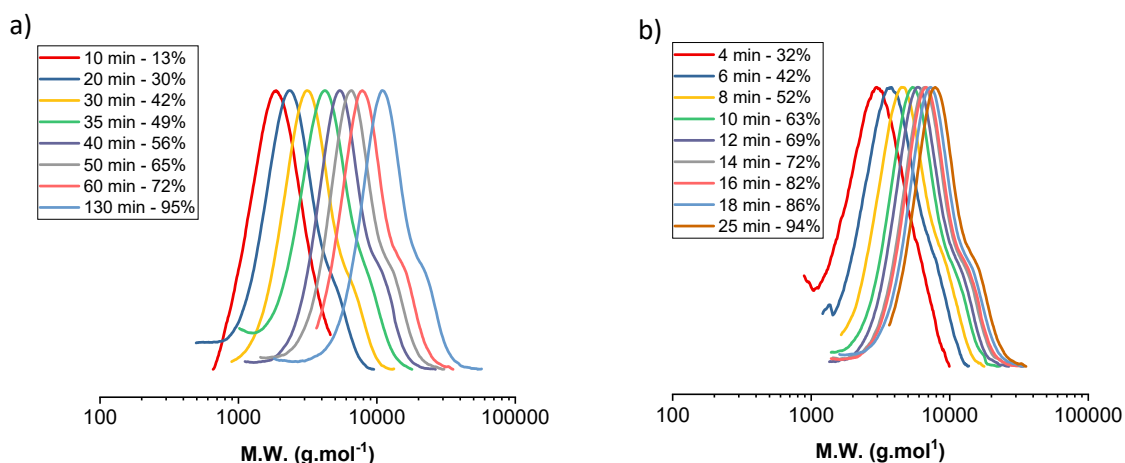


Figure S1. SEC traces of PDMS obtained from the trimethyl silanol initiated AROP of D_3 : a) entry 1 and b) entry 2 (Table1).

3. Benzyl alcohol initiated ROP

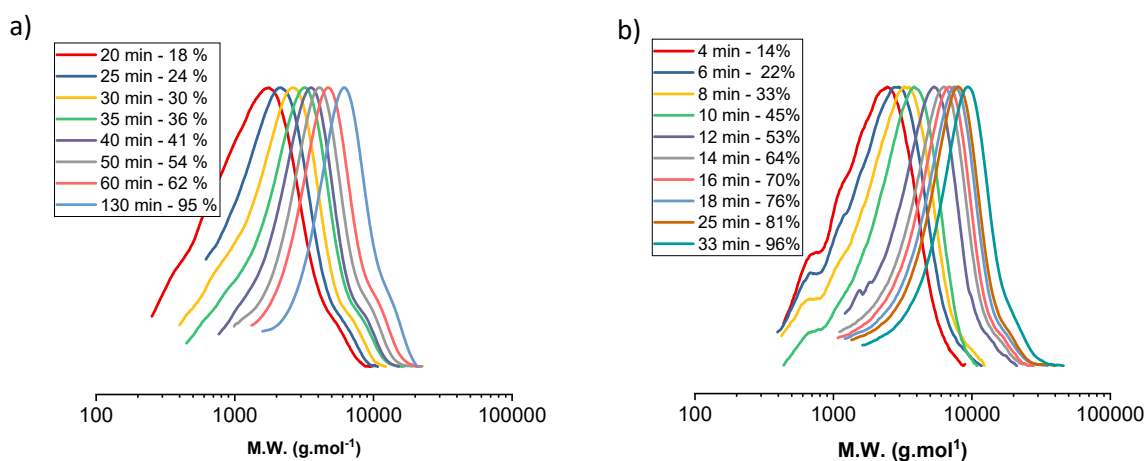


Figure S2. SEC traces of PDMS obtained from the benzyl alcohol-initiated AROP of D_3 : a) entry 3 and b) entry 4 (Table 1).

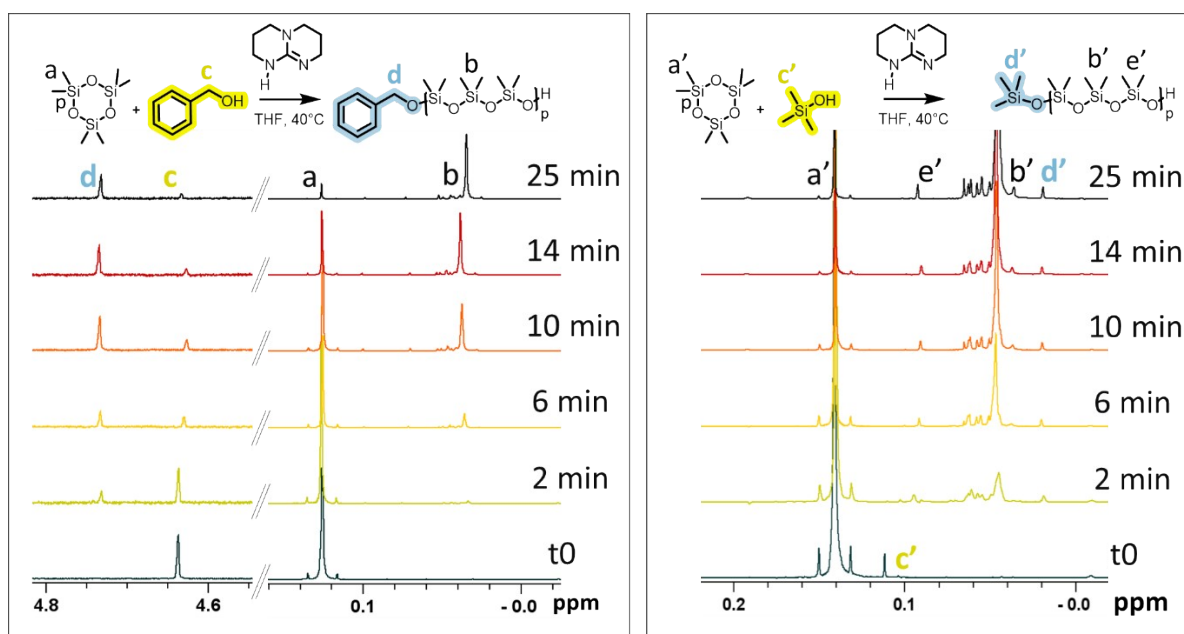


Figure S3. ^1H NMR spectra to see the consumption of TMSOH as initiator compared to BzOH as initiator for $[\text{M}]/[\text{OH}]/[\text{A}]=25/1/0.5$ (Entry 2 and 4 (Table 1))

4. Diphenylsilane diol initiated ROP

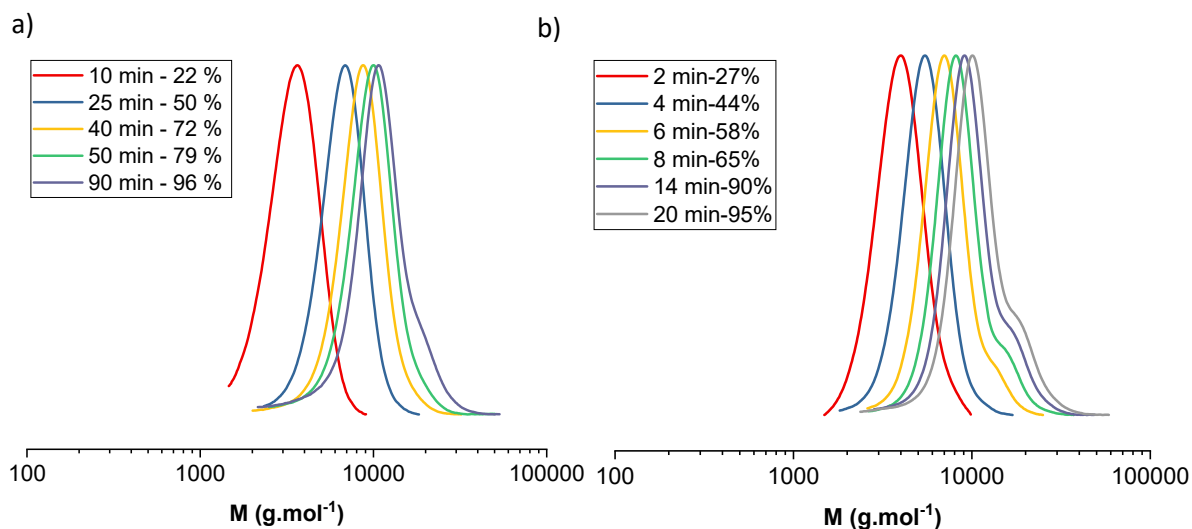


Figure S4. SEC traces of PDMS obtained from diphenylsilane diol-initiated AROP of D_3 : a) entry 5 and b) entry 6 (Table 1).

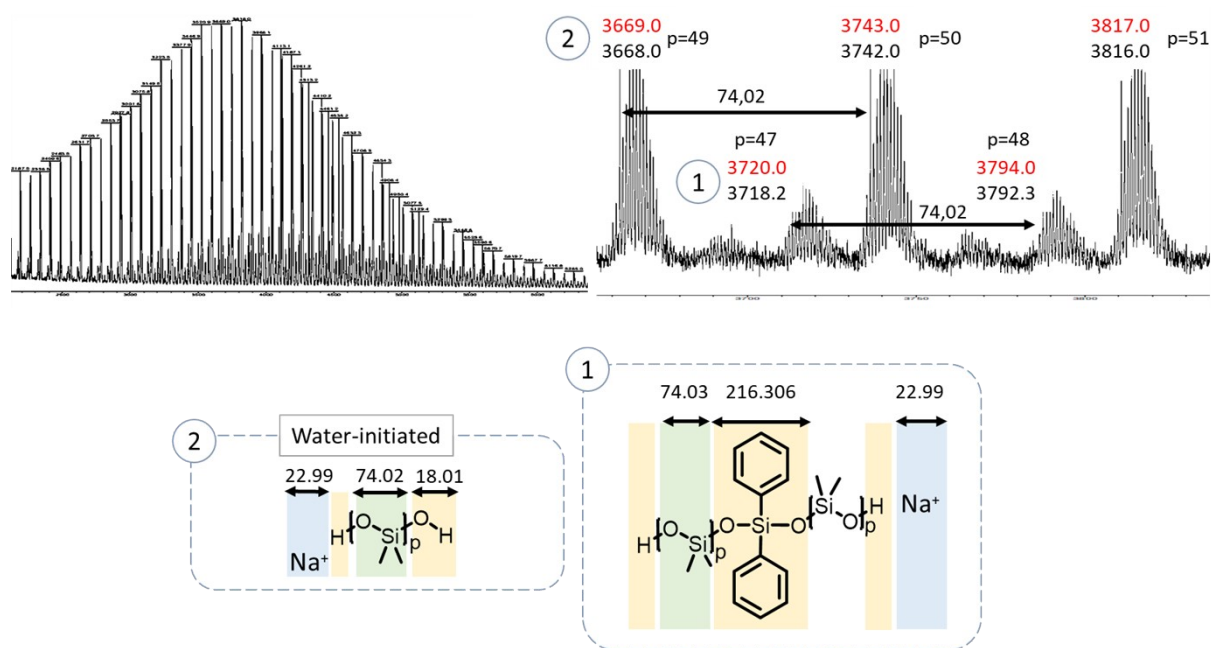


Figure S5. MALDI-TOF mass spectra of diphenylsilanediol-initiated PDMS entry 6 (Table 1).

5. Propane diol initiated ROP

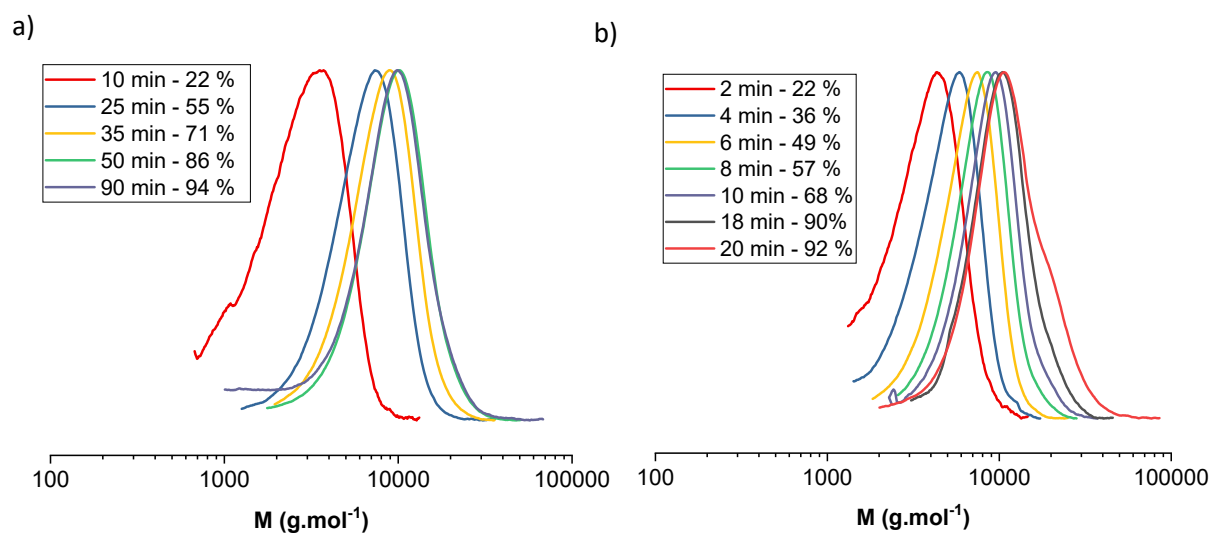


Figure S6. SEC traces of PDMS obtained from the propane diol-initiated AROP of D_3 : a) entry 7 and b) entry 8 (Table 1)

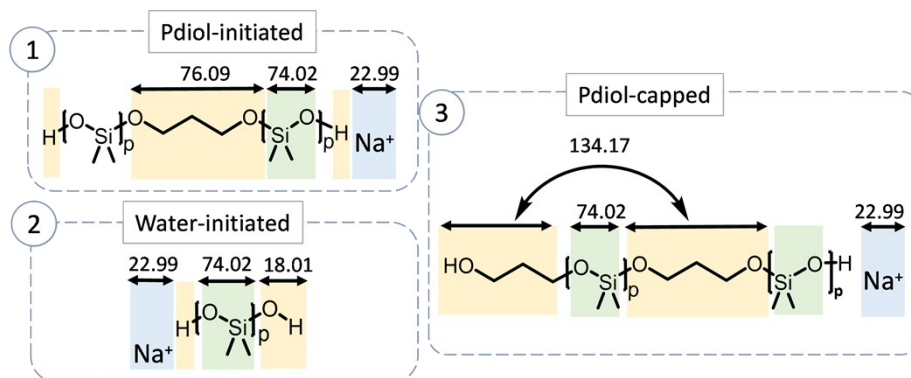
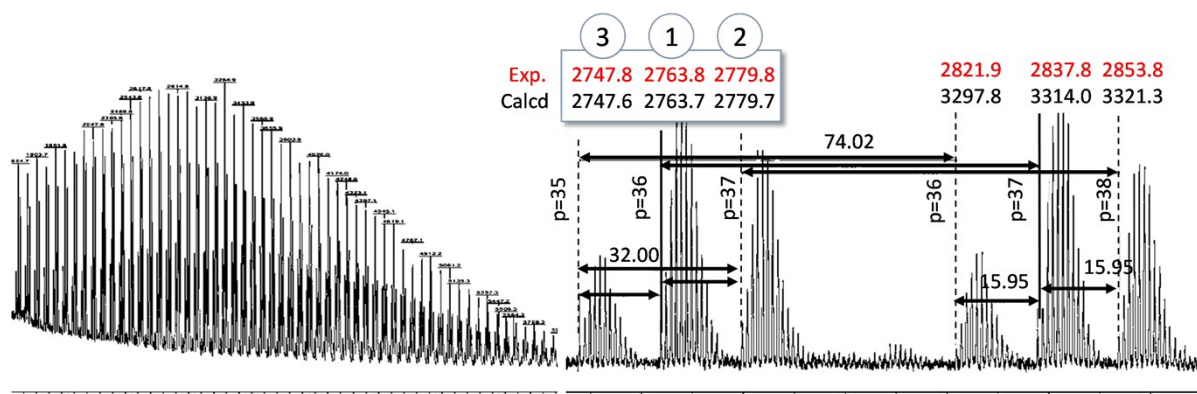


Figure S7. MALDI-TOF mass spectra of propanediol-initiated PDMS entry 8 (Table 1).

6. Polymerization of D₄

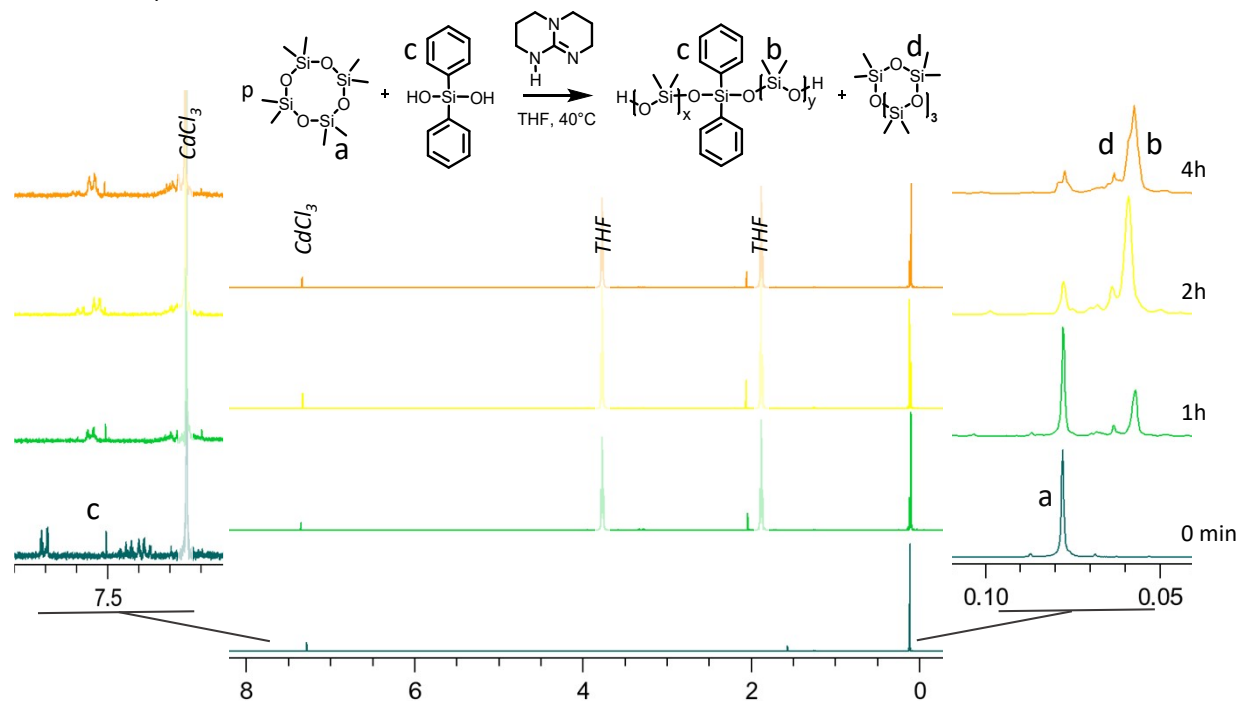


Figure S8. ¹H NMR spectra of the polymerization of D₄ (entry 2 of Table 3).