

Macromolecules

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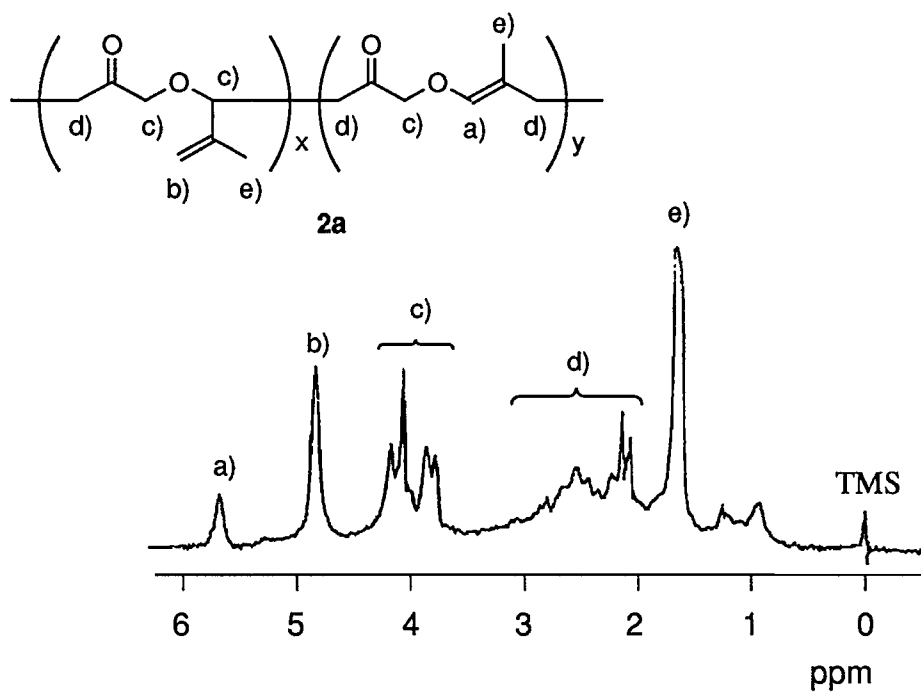


Figure S1. ¹H-NMR spectrum (90 MHz, CDCl₃) of **2a** obtained by photo-initiated cationic polymerization by **3** at ambient temperature for 1 h.

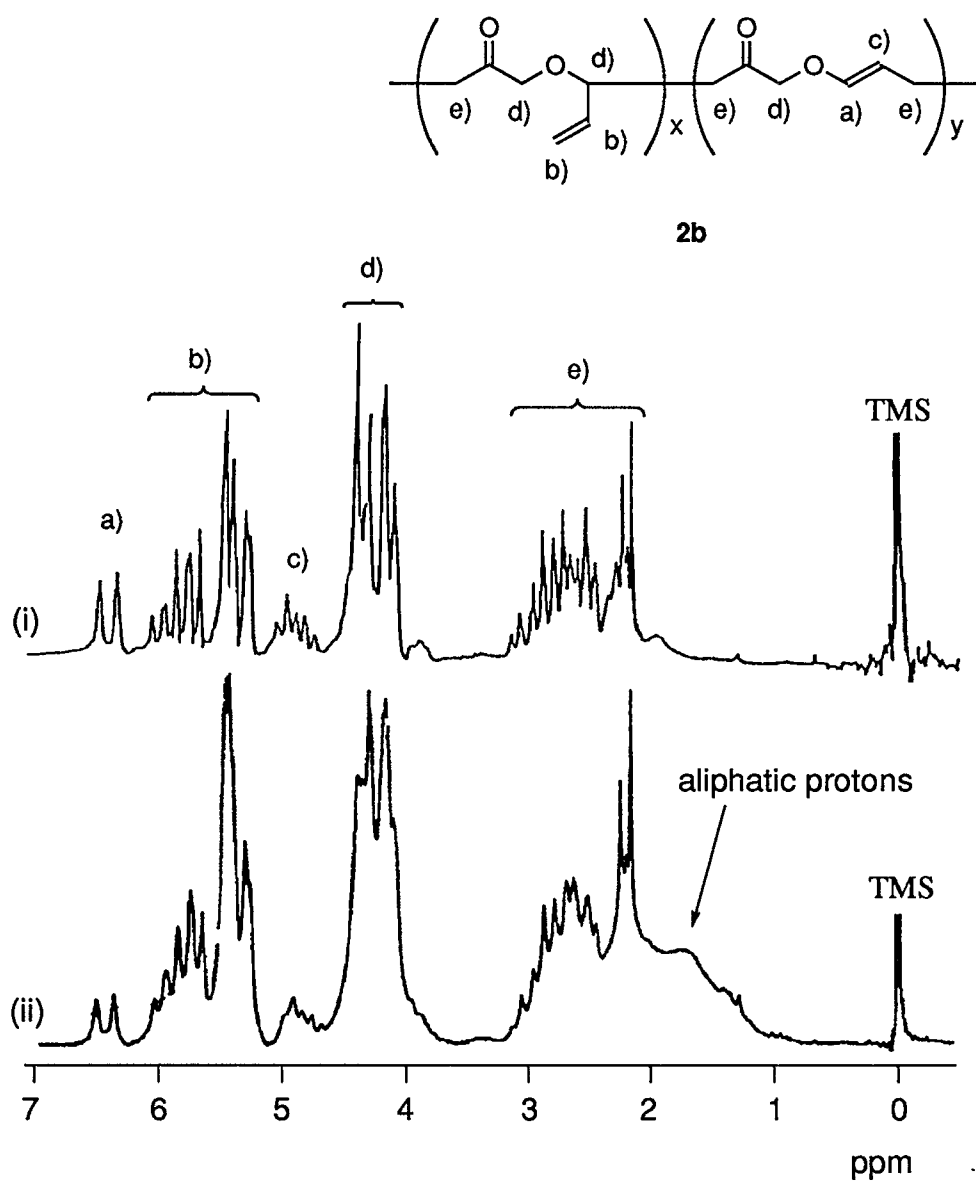
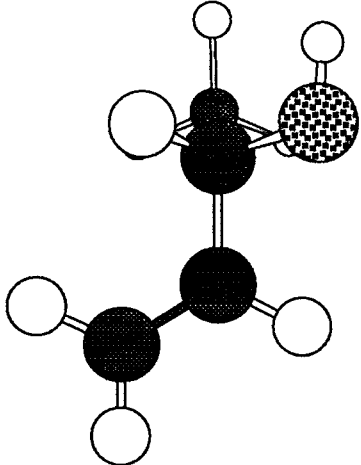
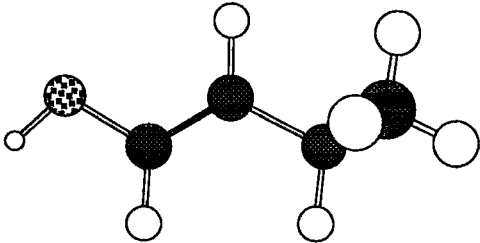
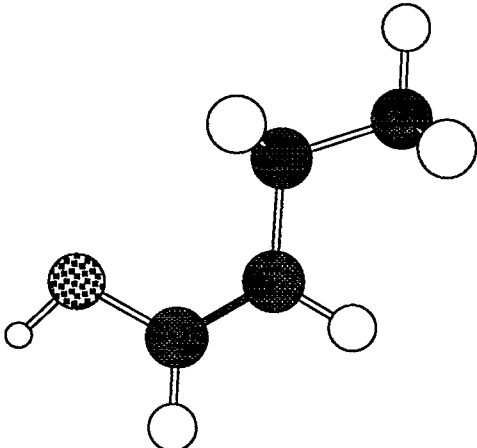


Figure S2. ^1H -NMR spectrum (90 MHz, CDCl_3) of **2b** obtained by (i) cationic polymerization initiated by methanesulfonic acid at $-78\text{ }^\circ\text{C}$ and (ii) photo-initiated cationic polymerization by **3** at ambient temperature for 1 h.

Table S1. Heat of Formations of **6** and **7** (Model Structures of Unit I and II of **2**).^{a)}

model structure	the most stable structure ^{b)} (local minimum structure)	heat of formation (kcal/mol)
6a		-46.19
7a-E		-51.47
7a-Z		-51.32

Table S1. (continued)

model structure	the most stable structure ^{b)} (local minimum structure)	heat of formation (kcal/mol)
6b		-37.75
7b-E		-43.61
7b-Z		-42.66

a) Calculations were carried out using program MOPAC with PM3 hamiltonian with PRECISE key word.

b) structures were placed as -C=C-C- plane was parallel to the paper.

Table S2. Coefficient of LUMO of **8** (Model Structure of Terminal Oxyallyl Cation **5**).^{a)}

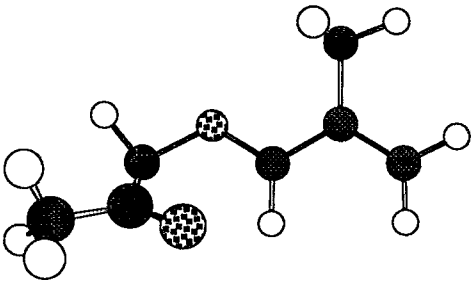
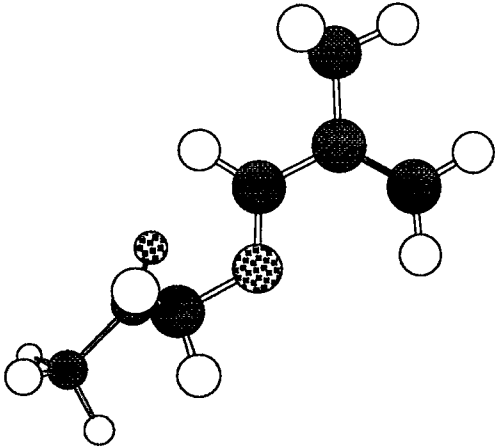
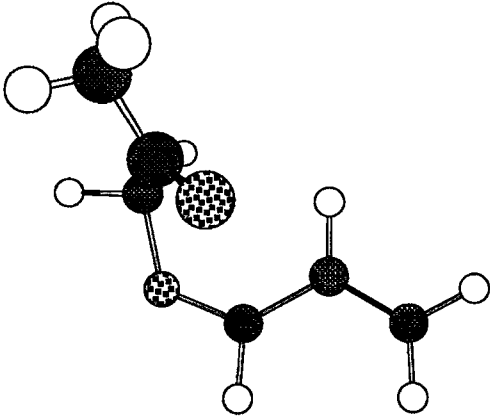
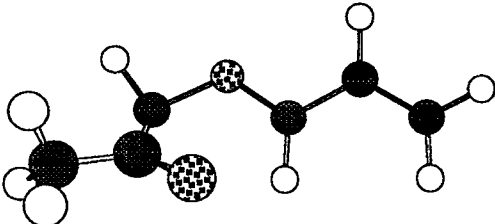
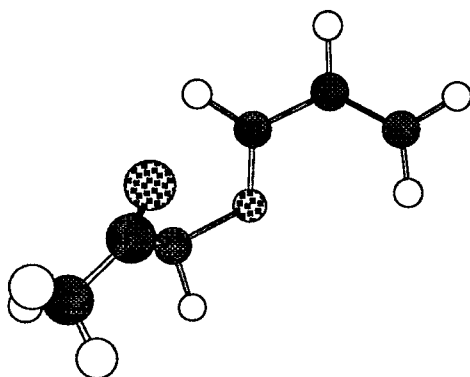
model structure	most stable structure ^{b)} (local minimum structure)	heat of formation (kcal/mol)	coefficient of LUMO	
			α -position	γ -position
8a-E		118.12	0.7314	-0.5552
8a-Z		118.10	0.7352	-0.5529
8b-E		126.96	0.7170	-0.5688
		127.00	0.7284	-0.5581

Table S2. (Continued)

model structure	most stable structure ^{b)} (local minimum structure)	heat of formation (kcal/mol)	coefficient of LUMO	
			α -position	γ -position

8b-Z

128.07

0.7266

-0.5646

- a) Calculations were carried out using program MOPAC with PM3 hamiltonian with PRECISE key word.
b) structures were placed as -C=C-C^+ plane was parallel to the paper.