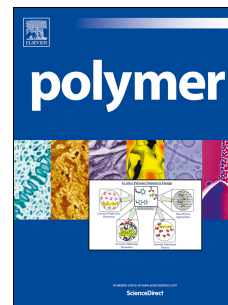


Accepted Manuscript

Thermo-responsive alternating conetworks by the Diels-Alder reaction of furan-terminated 4-armed star-shaped ϵ -caprolactone oligomers and maleimide-terminated 4-armed star-shaped L-lactide oligomers

Kaito Sugane, Naoki Kumai, Yoshiki Yoshioka, Ayaka Shibita, Mitsuhiro Shibata



PII: S0032-3861(17)30705-X

DOI: [10.1016/j.polymer.2017.07.038](https://doi.org/10.1016/j.polymer.2017.07.038)

Reference: JPOL 19850

To appear in: *Polymer*

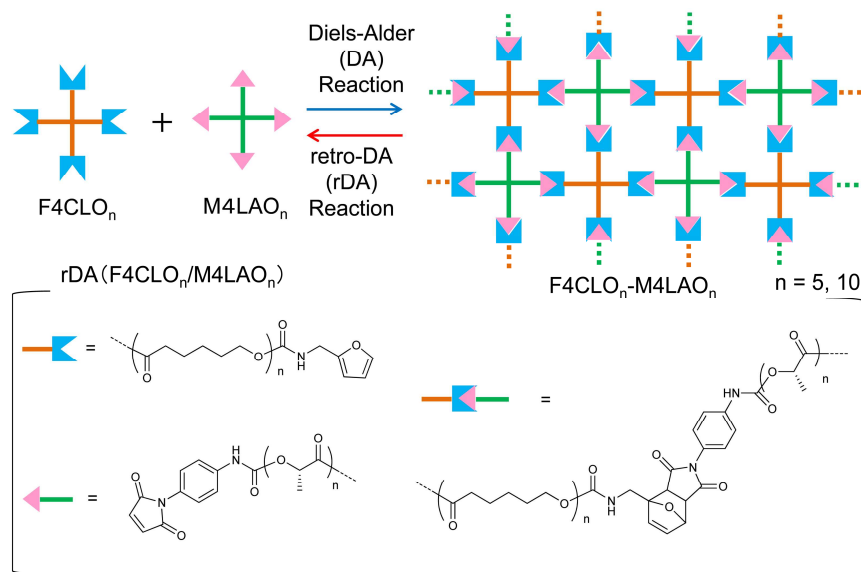
Received Date: 20 April 2017

Revised Date: 2 July 2017

Accepted Date: 14 July 2017

Please cite this article as: Sugane K, Kumai N, Yoshioka Y, Shibita A, Shibata M, Thermo-responsive alternating conetworks by the Diels-Alder reaction of furan-terminated 4-armed star-shaped ϵ -caprolactone oligomers and maleimide-terminated 4-armed star-shaped L-lactide oligomers, *Polymer* (2017), doi: [10.1016/j.polymer.2017.07.038](https://doi.org/10.1016/j.polymer.2017.07.038).

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



under a nitrogen flow of 100 mL min⁻¹. Scanning electron micrographs (SEM) were recorded with a Nova NanoSEM. The Raman spectra were measured by using a LabRAM Raman Spectrometer (Horiba Jobin-Yvon, France) with a laser excitation wavelength of 632.8 nm and 15.7 mW of radiation. The collection time for each spectrum was 60 s. Scattered light was detected with a thermoelectric cooled (-70 °C) charge coupled device detector (CCD). All measurements were carried out directly over the surface. Powder X-ray diffraction (XRD) patterns were recorded on a powder diffractometer (Rigaku D/Max 3500) with monochromated Cu K α radiation ($\lambda = 1.54 \text{ \AA}$) at a scanning rate of 2 $^\circ$ min⁻¹. Tensile test experiments were conducted on a RGM-4100 (Instron Co., Ltd., Canton, China) at room temperature with a crosshead speed of 0.5 mm min⁻¹. The experiments were performed

F4CLO₁₀-M4LAO₁₀

70 °C, 24 h

polyurethane was synthesized by the reaction of polyurethane prepolymer end-capped with furan (VI). The polymerization kinetics were studied by the study of the DA reaction between furan and maleimide by attenuated total reflection infrared (ATR-FTIR) spectroscopies, where in situ ¹H NMR was used as an analytical method of choice to study the reaction progress. The results showed that the reaction was most beneficial experimental conditions.

Self Repaired
F4CLO₁₀-M4LAO₁₀

ACCEPTED MANUSCRIPT

Download English Version:

<https://daneshyari.com/en/article/5177883>

Download Persian Version:

<https://daneshyari.com/article/5177883>

[Daneshyari.com](https://daneshyari.com)