Electronic Supplementary Information

Molecular Design of Environmentally Benign Segmented Polyurethane(urea)s: Effect of the Hard Segment Component on the Molecular Aggregation States and Biodegradation Behavior

Yoshihiko Oniki, Ken Suzuki, Yuji Higaki, Ryohei Ishige, Noboru Ohta, and Atsushi Takahara

*Graduate School of Engineering, Kyushu University, 744 Motooka, Nishi-ku, Fukuoka 819-0395, Japan.

Institute for Materials Chemistry and Engineering, Kyushu University, 744 Motooka, Nishi-ku, Fukuoka 819-0395, Japan.

International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, 744 Motooka, Nishi-ku, Fukuoka 819-0395, Japan.

Japan Synchrotron Radiation Research Institute / SPring-8, 1-1-1 Kouto, Sayo-cho, Sayo-gun, Hyogo 679-5198, Japan

*To whom correspondence should be addressed
Email address: takahara@cstf.kyushu-u.ac.jp
1. WAXD profiles of the SPU(U)s

**Fig. S1** Wide angle X-ray diffraction (WAXD) profiles of the SPU(U)s. 1 (black): LDI-BDA, 2 (red): LDI-BDO, 3 (green): BDI-BDA, 4 (blue): BDI-BDO. WAXD measurement was carried out on a RINT 2500V (Rigaku Co., Ltd.) with a Cu-Kα X-ray source (40 kV, 200 mA). The wavelength, λ, was 0.1542 nm. The data-collection time was 3 sec per step at 0.05° intervals. The scattering vector, \( q = \frac{4\pi\lambda}{\lambda} \tan\theta \), where \( \theta \) is the scattering angle, was calibrated by the peak positions of cerium dioxide.
2. Bio-degradation characterization of the LDI-BDO by FT-IR spectroscopy

Fig. S2 FT-IR spectra characterization of the LDI-BDO before and after the degradation test. FT-IR measurements were carried out by Spectrum One spectrometer (PerkinElmer Inc.). The spectra were recorded from 800 to 4000 cm$^{-1}$ with a resolution of 1 cm$^{-1}$ in transmission mode.