Preparation of substrates

Pellets of PE and PET were purchased from Scientific Polymer Products, Inc., USA. A polymer plate with a thickness of 1 mm was produced by hot pressing the pellets of each polymer. The polymer plate was cut into 10 mm × 10 mm (35 mm × 10 mm only for absorption measurements) square substrates using a lever-controlled sample cutter (SDL-200, DUMBELL Co., Ltd., Japan). The substrates were ultrasonically washed and dried under vacuum for 24 h. Substrates of EVOH with an ethylene content of 32 mol% were prepared from pellets (generously supplied by Kuraray Co., Ltd., Japan) by the method described elsewhere.

Figures in ESI

(a) SEM images and (b) EDX spectra of the surfaces of the PE substrate before and after the LAB process at 2, 4, or 6 W·cm⁻².

(b) FT-IR spectra of the surface of the PET substrate before and after laser irradiation in ultrapure water for 30 min.