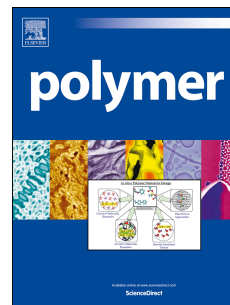


# Accepted Manuscript

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PII: S0032-3861(16)30094-5

DOI: [10.1016/j.polymer.2016.02.014](https://doi.org/10.1016/j.polymer.2016.02.014)

Reference: JPOL 18446

To appear in: *Polymer*

Received Date: 24 November 2015

Revised Date: 3 February 2016

Accepted Date: 4 February 2016

Please cite this article as: Yokoyama M, Takasu A, Alcohol Dependence of Anode-selective Electrophoretic Deposition of Non-Ionic Poly(ester-sulfone), *Polymer* (2016), doi: 10.1016/j.polymer.2016.02.014.

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# Alcohol Dependence of Anode-selective Electrophoretic Deposition of Non-Ionic Poly(ester-sulfone)

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**ABSTRACT:** Poly(ester-sulfone) was synthesized via a thiol-ene click reaction between bis(butenyl) methylsuccinate and 1,4-butanedithiol, and the product poly(ester-sulfone) was found to move to the anode selectively in electrophoretic deposition (EPD) on stainless steel. To clarify the electrophoretic mechanism, dispersions consisting of poly(ester-sulfone) and various protic solvents were prepared, and EPD on a metal substrate (stainless steel, titanium, indium tin oxide (ITO), and platinum) was performed. When an aprotic polar solvent (*N,N*-dimethylformamide, *N,N*-dimethylacetamide, and dimethyl sulfoxide) was used as the good (soluble) solvent and various alcohols as the poor (insoluble) solvent, anode-selective EPD behavior was attained. The negative zeta potential of each dispersion ( $-30$  to  $-20$  mV) was also confirmed, again using various alcohols as the poor solvent, which reveals that the electrophoretic behavior is dependent upon a partial charge separation in the protic solvent (alcohol) at the interface of the dispersion.

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