Supporting information

Poly(propylene fumarate) Stars, Using Architecture to Reduce the Viscosity of 3D Printable Resins

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Figure S1. (A) Comparison of $^1$H NMR spectra of four-arm star poly(propylene maleate) of a total DP20 with a meso-erythritol core (top) and corresponding four-arm star poly(propylene fumarate) obtained after isomerization (bottom). (B) Size exclusion chromatography profile of four-arm star poly(propylene maleate) of a total DP20 with a meso-erythritol core.
Figure S2. (A) Comparison of $^1$H NMR spectra of four-arm star poly(propylene maleate) of a total DP40 with a *meso*-erythritol core (top) and corresponding four-arm star poly(propylene fumarate) obtained after isomerization (bottom). (B) Size exclusion chromatography profile of four-arm star poly(propylene maleate) of a total DP40 with a *meso*-erythritol core.
**Figure S3.** (A) Comparison of $^1$H NMR spectra of four-arm star poly(propylene maleate) of a total DP80 with a *meso*-erythritol core (top) and corresponding four-arm star poly(propylene fumarate) obtained after isomerization (bottom). (B) Size exclusion chromatography profile of four-arm star poly(propylene maleate) of a total DP80 with a *meso*-erythritol core.
Figure S4. (A) Comparison of $^1$H NMR spectra of four-arm star poly(propylene maleate) of a total DP120 with a meso-erythritol core (top) and corresponding four-arm star poly(propylene fumarate) obtained after isomerization (bottom). (B) Size exclusion chromatography profile of four-arm star poly(propylene maleate) of a total DP120 with a meso-erythritol core.
Figure S5. (A) comparison of $^1$H NMR spectra of four-arm star poly(propylene maleate) of a total DP200 with a meso-erythritol core (top) and corresponding four-arm star poly(propylene fumarate) obtained after isomerization (bottom). (B) Size exclusion chromatography profile of four-arm star poly(propylene maleate) of a total DP200 with a meso-erythritol core.
Figure S6. End-chain possibilities for each distribution from MALDI-ToF MS spectrum of four-arm poly(propylene maleate) (PPM)
Figure S7. $\eta_s/C$ and $\ln(\eta_i)/C$ versus polymer concentration for star PPF DP40 and linear PPM DP40 solution in THF. Calculation of $g^{1/2}/g'$ ratios corresponding to three or four arms demonstrating the synthesis of four-arm PPF.

Figure S8. Differential scanning calorimetry (DSC) traces for PPF star polymers. Temperature scan rate was 10 °C·min⁻¹.