

Article

The effect of recycling on wood-fiber thermoplastic composites

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ANOVA AND TUKEY'S TEST ON FIBER ASPECT RATIO

Table S1. Fiber aspect ratio and Tukey's test after each recycling step.

No of passes	L/D
0	22±13 ^A
1	14±6 ^B
3	11±7 ^{B/C}
5	10±6 ^{B/C}
7	9±7 ^C
9	8±6 ^C

Marked with the same letter within the same column are not significantly different at 5% significant level based on ANOVA and Tukey's test.

SHEAR VISCOSITY

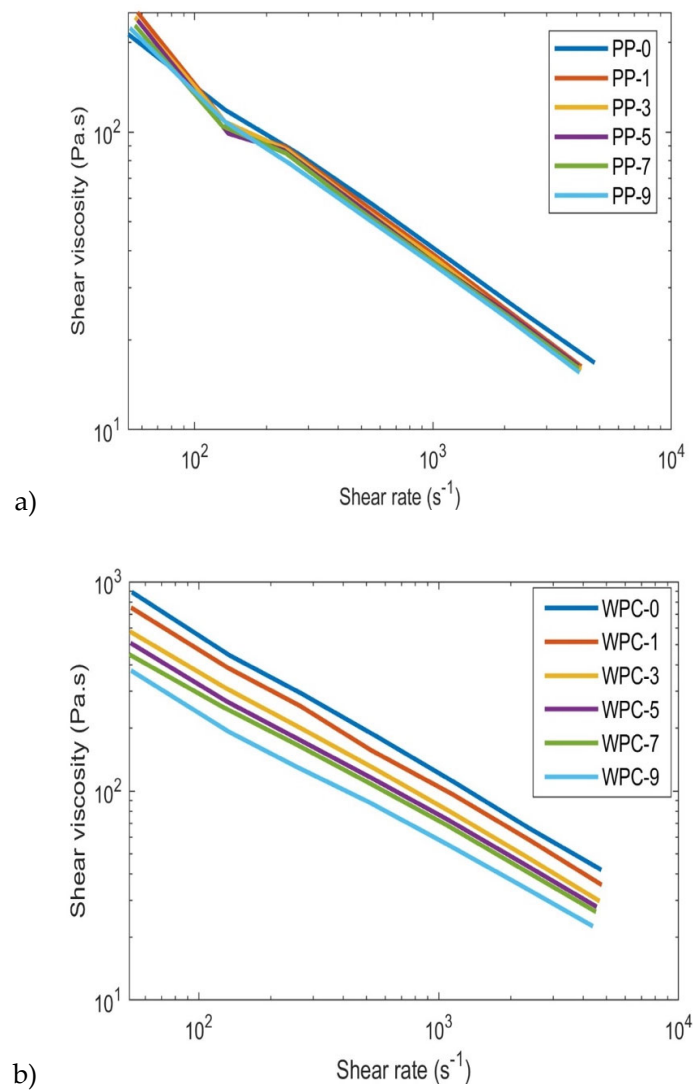


Figure S1. Viscosity as a function of sheat rate after each recycling step. a) PP-0, PP-1, PP-3, PP-5, PP-7 and PP-9 and b) WPC-0, WPC-1, WPC-3, WPC-5, WPC-7 and WPC-9 at 230 °C

DIFFERENTIAL SCANNING CALORIMETRY

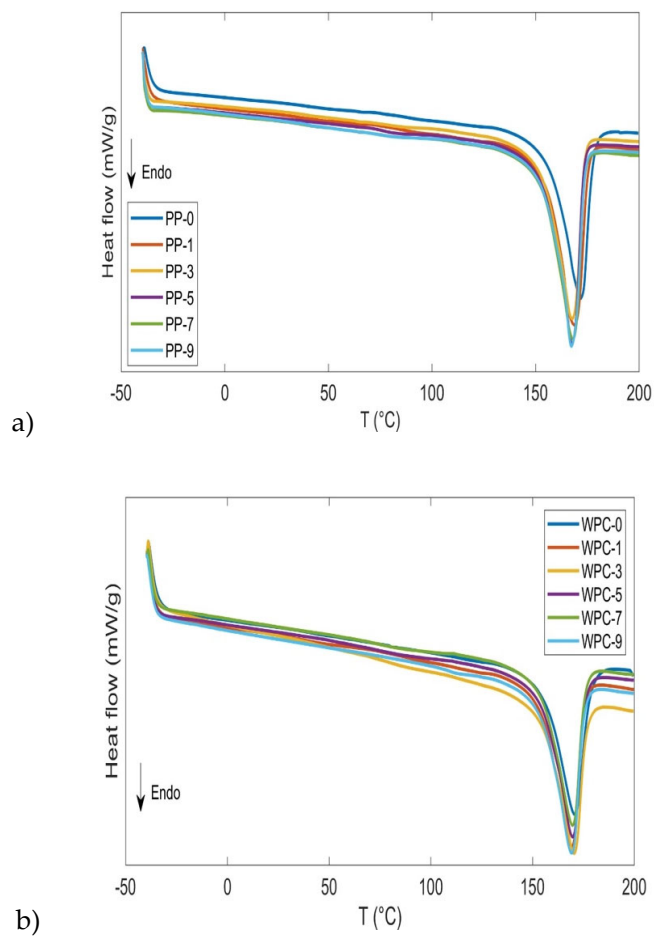


Figure S2. Differential scanning calorimetry (DSC) graphs for the neat PP and WPC after each recycling step. a) PP-0, PP-1, PP-3, PP-5, PP-7 and PP-9 and b) WPC-0, WPC-1, WPC-3, WPC-5, WPC-7 and WPC-9.

THERMOGRAVIMETRIC ANALYSIS

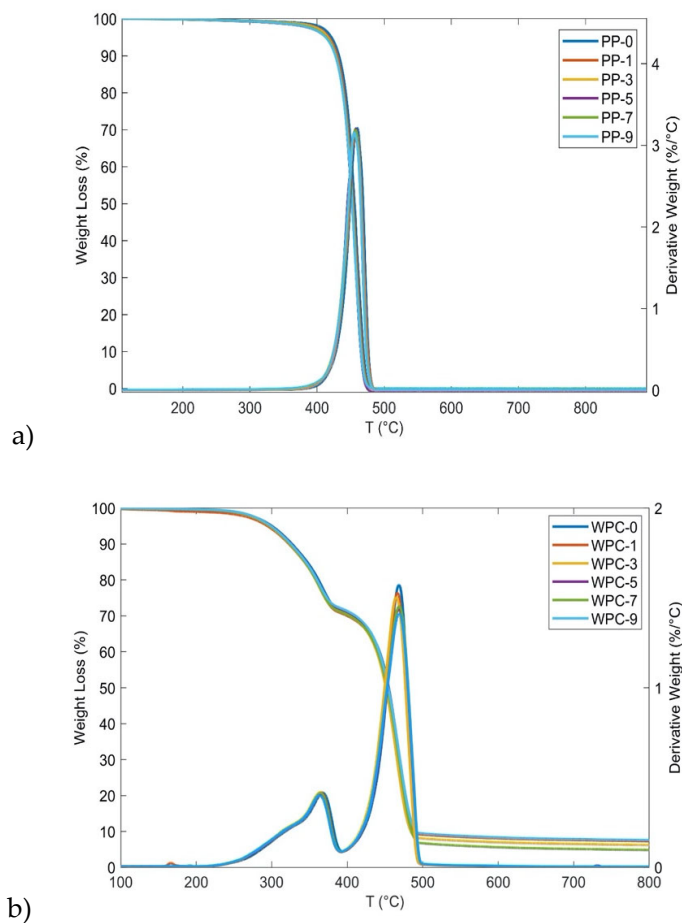


Figure S3. Thermal degradation (TGA/DTG graphs) for PP and WPC after each recycling step. a) PP-0, PP-1, PP-3, PP-5, PP-7 and PP-9 and b) WPC-0, WPC-1, WPC-3, WPC-5, WPC-7 and WPC-9.

SCANNING ELECTRON MICROSCOPE – FRACTURE SURFACES

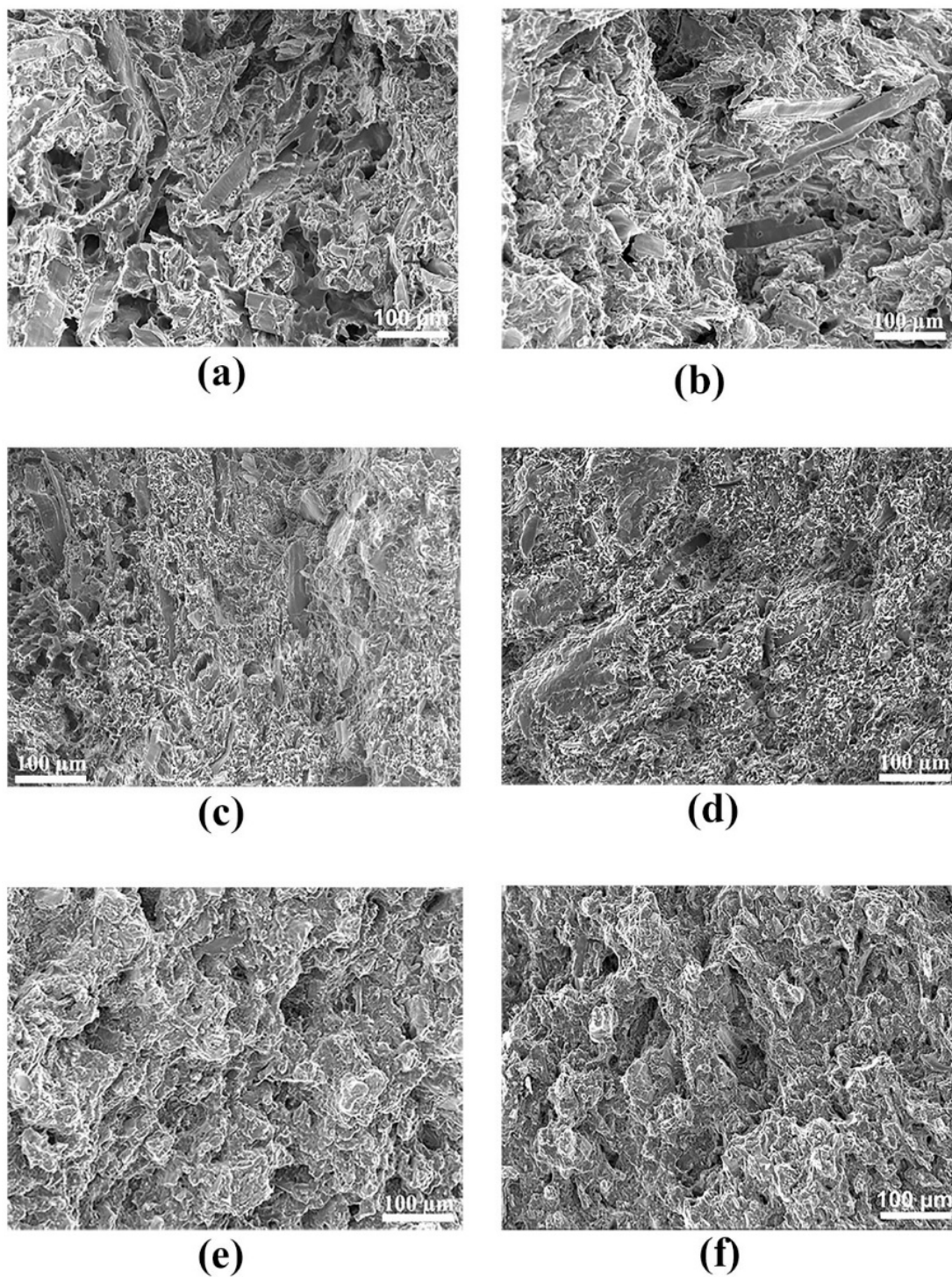


Figure S4. Fracture surfaces of WPC after each recycling step showing that interaction between the MAPP and WPC is improved during repeated processing. (a) WPC-0, (b) WPC-1, (c) WPC-3, (d) WPC-5, (e) WPC-7 and (f) WPC-9.