SYNTHESIS OF NEW RESINS FOR THE PREPARATION OF
UV-CURE SHAPE-MEMORY COATINGS

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Keywords: self-healing, polyester-urethane acrylate, shape-memory

\textbf{ABSTRACT}

In this work the synthesis of novel polyester-urethane acrylates, for use in self-healing UV-cure coatings, is described. Combining telechelic alcohol-functional polyesters and flexible diols of low to medium molecular weight with aliphatic diisocyanates resulted in isocyanate-functional prepolymers that were end-capped with hydroxyl-functional acrylates, yielding acrylated urethane resins of medium molecular weight (15-30 KDa). Introduction of flexible urethane segments into the polyester improved the stability of solutions in isobornylacrylate towards pre-cure phase separation due to crystallization, while the shape-memory characteristics of the final cured materials were retained.