Non-Radical Chemistries for Lithographic 3D Printing

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While printing formulation variability allows for some flexibility of material properties in stereolithographic 3D printing via free radical photopolymerization, this flexibility is considerably restricted by a narrow processing window.[1] Recent engineering developments have enlarged this processing window, which creates an avenue towards utilization of radical-free polymerization mechanisms in lithographic 3D printing. For example, by increasing printing temperature in Hot Lithography we were able to produce SLA-printed parts via ionic photopolymerization and polycondensation.[2-4] Clever utilization of different light sources for the printing process are another possibility to make new chemistry accessible for 3D printing.[5] We have also designed systems where non-radical, wavelength-selective reactions are utilized for network formation.

References

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