

## Acrylate Derivatives Based on Glycerol in Polymer Field

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Through this work, we proposed the use of glycerol derivatives: Solketal Acrylate (SoIA) and Glycerol Carbonate Acrylate (GCA) in polymer field. Low mass polymers (oligomers) were synthesized by radical telomerization. The kinetic studies have been carried out identifying the reactivity of acetal and cyclocarbonate-based monomers and determining the transfer constant of telogen agent in both cases. Several oligo(GC-*stat*-Sol)s were also synthesized by varying GCA/SolA ratio. The incorporation of SolA in GCA structure by cotelomerization solved GCA problem of solubility as well as offered a large scope in the thermal behavior.

On the one hand, selective hydrolysis of cyclocarbonate and acetal protective groups of glycerol-based oligomers were performed under acidic and basic conditions. An orthogonality aspect was clearly demonstrated between the two masking groups.

Finally, the functionalization of these polymers were successfully investigated either by telomerization using functionalized telogen agents or by reaction between amine and cyclocarbonate. The cyclocarbonate group permitted to obtain various branched polymers. This latter strategy permitted the synthesis of non isocyanate polyurethanes (NIPU) *via* two steps strategy under mild condition avoiding high temperature.