

# BIOSOURCED POLYESTER ACRYLATE COATING: SYNTHESIS AND CHARACTERIZATION

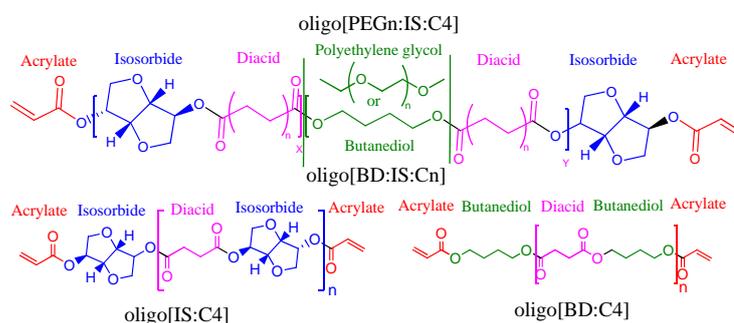
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Substitutes to petrochemicals are today developed from renewable materials to solve the pollution environmental issues. Unsaturated polyesters (UPE) are very interesting resins for many technical applications. One of them, the polybutylene succinate (PBS) was recently synthesized from succinic acid and butanediol which are produced by biomass fermentation process. However, this polyester has low mechanical properties for technical coatings.

Statistic polyester acrylates with low polydispersity and  $T_g$  were synthesized and characterized by SEC, DSC and DMA. The relative acid value is between 60 and 80 mgKOH/g and the biorenewable carbon content can reach 71 to 90%. Incorporation of the different diols in the backbone was confirmed by NMR. The mixtures of mono and difunctional oligomers were then crosslinked under LED irradiation and characterized.



Chemical structure of the synthesized polyesters acrylates oligomers.figure

Thermomechanical properties are determined for polyester acrylate resins based on isosorbide with incorporation of diacid chains ranging from succinic acid (C4) to azelaic acid (C9) and diols with various structures such as butanediol and poly(ethyleneglycol) (PEG) with the aim to affect the stiffness of photopolymerized coatings.