



STUDYING THE PROPERTIES OF ECO-FRIENDLY UNSATURATED POLYESTER RESINS (UPRS) CELLULOSE NANOCOMPOSITES BASED ON SUCCINIC ACID

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ABSTRACT

Over the last years, advances in the field of polymer chemistry have allowed the production of novel bio-based polymers. Research focuses on those materials to counter problems such as the accumulation of waste and the depletion of natural resources. Among others, UPRs are one of the most used polymer classes, due to the simplicity of their processing and the variety of fields that they are applied to. So, a demand for bio-based UPRs to be used as coatings or adhesives was also created. Regardless the intended use, a UPR consists of an unsaturated polymer matrix that is often mixed with an unsaturated monomer called reactive diluent, to lower viscosity and increase processability, with which after a thermally or UV induced curing forms a cross-linked network. In this work, UPRs partially based on biobased monomers were prepared. Succinic acid and maleic anhydride were combined to synthesise the resins while acrylic acid was used as the reactive diluent. Cellulose nanocrystals were also used to **tinker** with material properties. The curing of the resins was thermally induced. Several characterization methods were utilized to examine physicochemical properties of the materials.

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