Title: Crystalline Nanocellulose Composite for Non-Load Bearing Applications

Over the last decade, cellulose-based nanocomposites have received much attention and are expected to be used to help overcome the shortage of fossil resources and to resolve environmental problems. Cellulose shows high strength/weight performance and is abundant. The vast growth of interest in sustainability implies a substantial interest of transport OEMs in high performance cellulose crystalline filled thermoplastic composites. Thermoplastic resins have recently received undivided attention due to the environmentally beneficial effects and recyclability. Nanocomposites with different biodegradable polymer matrixes, such as polylactic acid (PLA), starch and poly(vinyl acetate) (PVAc), reinforced with cellulose nano-crystals (CNC) or cellulose nanofibers (CNF) have been investigated. However, unsatisfactory enhancements due to the poor dispersion of cellulose nanomaterials were reported, causing one of the main gaps between academic studies and industrial applications.

“The potential applications of nanocellulose in interior and exterior automotive components.”

The aim of this project is to develop a new sustainable form of composite produced from renewable resources, comprising the structural and thermal performances required for non-load bearing applications. The project results are to be exploited within the mass transport sector. Some experimental work of this project is shown below:

Tensile testing will be carried out to evaluate the mechanical performance of composites.

Water absorption test will be conducted to investigate the water resistance of composites.

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