

Advanced process for obtaining modified nanocellulose for Ultra-high molecular weight polypropylene composite

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Ultra-high molecular weight polypropylene (UHMWPP) and modified nanocellulose were successfully compounded. Modification was required because UHMWPP and nanocellulose are poor compatibility each other. In this study, a coupling agent that increases interfacial compatibility between polymers and fillers was used. Cellulose Nano Fiber (CNF) was modified with Vinyltriethoxysilane and dried by spray dryer.

A twin-screw extruder was used as the compounding equipment and the specimens were processed with a hot press and then measured using Universal testing machine. Composite specimens show superior elongation compared to conventional specimens and are expected to be used as composite materials in future industries.