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EFFECT OF FOAMING AGENT TYPE ON THE MICROSTRUCTURE OF FINECELLULAR INJECTION MOLDING WOOD-HDPE PARTS

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The goal of this research work was to investigate the role of Foaming agent type on the Microstructure of Finecellular injection molding Wood-HDPE parts. Azodicarbonamide was used as the chemical foaming agent (CFA) and Nitrogen gas was used as the physical foaming agent. Independent variables were selected as wood content (40%) and shot size (85%). Using scanning electron micrograph (SEM) analysis, cell size and cell population density were measured. The result showed that using CFA will lead lower cell size with more uniform structure respect to the produced parts with nitrogen gas as the physical foaming agent. Moreover, WPC products with CFA yield the highest cell population density. The higher amount of cell population density, about 4×10^8 , was due to the method of mixing which used in the WPC granulating stage, that CFA was added in the granulating stage via extruder, where the processing parameters was controlled in such a way that no reaction occurs. This method provides better mixing of chemical blowing agent in the produced WPC granules with respect to using blowing agent directly at the Injection molding process.