

Abstract Submitted
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Cold-atmospheric pressure plasma polymerization of acetylene on wood flour for improved wood plastics composites WILLIAM LEKOB¹, PATRICK PEDROW², KARL ENGLUND³, MARIE-PIERRE LABORIE⁴, Washington State University — Plastic composites have become a large class of construction material for exterior applications. One of the main disadvantages of wood plastic composites resides in the weak adhesion between the polar and hydrophilic surface of wood and the non-polar and hydrophobic polyolefin matrix, hindering the dispersion of the flour in the polymer matrix. To improve interfacial compatibility wood flour can be pretreated with environmentally friendly methods such as cold-atmospheric pressure plasma. The objective of this work is therefore to evaluate the potential of plasma polymerization of acetylene on wood flour to improve the compatibility with polyolefins. This presentation will describe the reactor design used to modify wood flour using acetylene plasma polymerization. The optimum conditions for plasma polymerization on wood particles will also be presented. Finally preliminary results on the wood flour surface properties and use in wood plastic composites will be discussed.

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