

Abstract Submitted  
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**Formulation and validation of a computational model for a dilute biomass slurry undergoing rotational mixing**<sup>1</sup> MICHAEL SPRAGUE, JONATHAN STICKEL, HARISWARAN SITARAMAN, NREL — In this work we focus on development and validation of a computational fluid dynamics model of a dilute biomass slurry, which is a highly viscous particle-laden fluid for which settling effects can dominate. We model the biomass slurry as a generalized Newtonian fluid that includes biomass-concentration-dependent viscosity and solids transport due to settling and shear. We solve the model with the Nek5000 spectral-finite-element code in a simple vane mixer and calculate the torque as a function of various rotation rates. We compare simulation results against those from experiments for a suspension of 5

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