

Numerical Simulation of Induction Heating of a High Speed Rotating Cup and its Experimental Verification

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Thin platelets of glass, called glass flakes, have found wide application in industrial products as pigments, as reinforcement for polymers to improve modulus and dimensional stability or as filling materials to enhance the corrosion resistance, among other things. The state of the art in producing glass flakes is a centrifugal method, where liquid glass melt is supplied to a rotating cup or drum. Due to the centrifugal and Coriolis forces subjected on the glass melt, the glass melt is formed into very thin glass film on the rotating object. To keep the glass within the range of processable viscosity, the rotating cup is heated with induction heating. *COMSOL Multiphysics* is used to optimize the heating of the high speed rotating cup by means of induction heating. The number of coils, the distance between the copper coils and the rotating cup, and the temperature homogeneity of the cup's surface are investigated. Moreover, experimental work is done to validate the numerical simulation.