

Effect of Confined Wall in Dip-coating Flows

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For the better capture systems of particulate matters (PM), catalyst coating inside the honeycomb-structured diesel particulate filter (DPF) has been great interest. In this study, dip coating method with confined wall was applied to simply describe coating behaviors inside microchannels of the honeycomb, reflecting the bubble motions in long tube flow cases. First, the flow dynamics of Newtonian and non-Newtonian fluids from free dip coating case was successfully compared with the basic Landau-Levich and Bretherton equations. Also, the effect of confined wall geometry on the coating thickness and contact angle for two fluids was elucidated in the dip coating process.