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**Effect of surface condition on the flow in segmented gas-liquid microreactors**[1] SHAHRAM POUYA, MANOOCHEHR KOOCHESFAHANI, Michigan State University — The mixing process within segmented gas-liquid microreactors is of significance importance in design and optimization of devices for high throughput material synthesis. In a typical slug flow regime the liquid slugs are connected through a thin liquid film that plays an important role in hydrodynamics of the microreactor flow. Among the parameters that can influence the thin film layer, and the overall flow, is the surface condition of microchannel walls. We present preliminary results of this influence in the segmented gas-liquid flow of Ethanol/Nitrogen within PDMS microreactors. The results are presented specifically for microreactors with different level of roughness on the channel walls. The range of stable slug flow regime and behavior of liquid film are studied as a function of surface roughness.

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