Prosiding Seminar Nasional Teknik Kimia "Kejuangan"
Pengembangan Teknologi Kimia untuk Pengolahan Sumber Daya Alam Indonesia
Yogyakarta, 26 Januari 2010
ISSN 1693 – 4393

Studi Eksperimental Aliran Gas-Liquid Dalam Mikroreaktor (Canal Straight-Serpent)

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Abstract

Microstructured reactors are reactors with three dimensional structures, the inner dimensions of which are under a millimeter in size. Microstructured reactors can be advantageously used as process engineering tools for acquiring information which allow in a short time and with greater safety, a process to be transferred to the pilot and production scale. Information from microstructured reactors can also be used for optimizing process plants already in operation. Microstructured reactors are suitable for the exothermic/endothermic reaction and or limited by mass transfer.
The objects of the experiment are to study parameters hydrodynamic (length of bubble and slug) for gas-liquid flow as Taylor flow at 2 conditions of which are first constant-volumetric flow rate of gas 0.75 ml/min and volumetric flow rate of ethanol varies between 0.2 ml/min – 1 ml/min, and second for constant-volumetric flow rate of ethanol 0.3 ml/min and volumetric flow rate of gas varies between 0.3 ml/min – 1 ml/min.
Two configurations of reactor (canal take form serpent) are used in this experiment. Results of experiment show that the lengths of bubble under the influences of the volumetric flow rate of continue and discontinue phases, and also the dimension of canal-reactor. Garstecky's method is suitable to predict the dimensions of bubbles at canal configuration of serpent/meander. The result will be compared with the previous work in the configuration "T".

***Keyword**: microcanal, hydrodynamic, gas-liquid flow*