Investigation of Pressure Drop on Flow Behavior in a Packed Bed Column: A Review

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ABSTRACT

Computational fluid dynamics (CFD) has emerged as an advanced tool for predicting the fluid flow and heat transfer characteristics in many chemical engineering applications such as fluid flow behavior in packed beds. In the chemical field, packed beds are extensively used in petroleum refining, petrochemical, biochemical, pharmaceutical industries and energy technology. In this review article CFD aims to application for investigation and development of different packings of bed eg. spherical, cylindrical and cubical shapes. This review summarizes a comprehensive study on the numerical simulation of the pressure drop created in the packed beds of various packings. Furthermore, the existing review article provides research gaps available for the future studies, although additional developments are necessary to be generally applied to industrial processes.

Keywords: Pressure drop, Computational fluid dynamics (CFD), Packed bed, Packing shape, Fluid flow

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