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Determination of the effect of system temperature on the sweep quality of gases

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Abstract

The effect of system temperature on the sweep quality (SQ) of common gases used in the industry has been investigated experimentally. SQ measures the degree of spread of fluid across the nooks and crannies of porous matrices. It is desired for SQ to be relatively high in some industrial processes. Investigators have studied quantities that qualify fluid behaviour in porous media, such as permeance, transmissibility and mobility, and how these quantities are affected by temperature. The equation of state for ideal gas indicates temperature can affect other properties of gases. However, the temperature effect on SQ has not been investigated thus the need for this research. The benefits of the research outcome extend across industrial processes where there are endothermic or exothermic interactions, process control, and output optimization, such as fluid displacement, catalytic reaction, and gas separation.

Biography

Ofasa Abunumah is a Senior Petroleum Engineer at the Ministry of Petroleum Resources, Nigeria. He is currently leading some researchers at the Centre for Process Integration and Membrane Technology at the Robert Gordon University (|RGU), United Kingdom. He has acquired several qualifications in Chemical Engineering, Petroleum and Environmental Technology, Business and Accounting and Information Technology. He has over 10 years of experience working in the oil and gas industry. He has been part of crucial petroleum data management projects in the Ministry of Petroleum Resources, Hiladol Nigeria Limited and RGU, such as the Compendium of Petroleum Statistics, Data mining of Global Enhanced Oil Recovery Projects. His recent research focus is on membrane technology, gas flow through porous media and Enhanced Oil Recovery technologies. His strengths are in experimental, mathematical and cost modeling..

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