

The effect of packing materials on the hydraulics in a packed column under offshore conditions

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FPSO(Floating Production Storage and Offloading) receives attention as one of the deep sea oil well exploitation. Offshore plant has many economic advantages but it is constantly exposed to the ocean environment like permanent tilt and dynamic motions that cause the liquid mal-distribution in the gas treating process. This liquid mal-distribution is directly related to the gas treating efficiency.

In this study, we conducted the air/water system experiment to analyze the liquid flow characteristics in the 133mm diameter column packed with corrugated sheet structured packing(mellapak 500X). The hydraulic experiment under various tilt conditions was carried out by two sorts of methods which are drainage and ERT(Electrical Resistance Tomography). All experiments are done in two kinds of structured packing materials, stainless steel and polypropylene. The experimental data were analyzed by using the theoretical correlation of liquid width and thickness and compared with the available correlations in open literature to develop a proper holdup model. This developed holdup model will be used in the absorption model under offshore conditions.