

Tomographic measurement of liquid velocity distribution in a packed column subjected to tilt

김광인, 손용호, 김희용, 이광순†  
서강대  
(kslee@sogang.ac.kr†)

FPSOs (floating production storage and offloading) which are one of those ocean plants are studied and some of them are already on operation or construction for its costal advantage over onshore plants. One major difference from the aspects of onshore plants is that those ocean plants are exposed to harsh ocean environment which causes considerable ship motions to them. Offshore condition like permanent tilt and periodic motion cause liquid mal-distribution in absorption column which is essential for separation process such as acid gas sweetening. Liquid mal-distribution has adversely effects to the mass transfer performance because of unstable operating condition in column.

In this research, we conducted an air/water system experiment to analyzing the liquid flow behavior in the packed column subjected to offshore condition with an electrical resistance tomography (ERT). ERT is an electrical technic so that it can analyze the liquid flow behavior in packed column without disturbing flow pathway. Brine pulse was injected suddenly to the steady-state column, and the conductivity data obtained with ERT program was analyzed.