

Experimental investigation of liquid holdup in a packed column under offshore conditions using Electrical Resistance Tomography (ERT)

김광인, 이광순[†], 손용호, 김희용

서강대학교

(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 a pilot scale experiment to analyzing the liquid holdup behavior in the packed column subjected to an offshore condition with an electrical resistance tomography (ERT). ERT is an electrical technic and it was used for tracer detector. A number of ERT planes were installed and brine pulse was injected suddenly to the steady-state column. Consequently, the conductivity profile obtained with ERT program was analyzed.