

## An experimental study of gas behavior in aquifer and residual CO<sub>2</sub> gas

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### 1. Background & Purpose

Underground sequestration of CO<sub>2</sub> is recently expected as an effective concept to reduce the green house gas in the atmosphere. Especially, residual gas which is injected one into aquifer and trapped in the pores can be the most effective method to store the gas in reservoir. The purpose of this study is to examine the fundamental mechanism of residual gas formation and gas migration under ground by injecting the gas into a modeled and visualized aquifer.

### 2. Experiments

We used glass beads as porous media to construct some reservoir models that have various permeability, porosity, and wettability. They were filled with water, then air was injected from the bottom. The air behavior was observed and the distribution and saturation of residual gas were measured.

### 3. Results

The experimental results showed that differences of reservoir properties made changes in the gas behavior and residual gas volume. It is also confirmed that air injection rate (injection pressure) was a sensitive property against residual gas volume that can be maximised by selecting a suitable injection rate for each reservoir property.