



Investigation on changes in petrophysical properties during CO₂-injection on quartz rich sandstones

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Changes of petrophysical parameters were studied on four different quartz rich sandstones (from northern and western Germany) before and after CO₂-injection. The injection experiments were carried out in variation of time scale (from 1 to 4 hours) to see the time relation and also different salinity (0.1M to 1M NaCl-solution) to investigate the effect of brine salinity on porosity, permeability and electrical conductivity changes. All the samples were fully saturated before the injection using vacuum desiccator. Constant pressure method was used for all sets of experiments. X-ray powder diffraction (XRD) analysis was also done to investigate the mineralogical composition changes before and after the CO₂ injection. The first results show a relationship between the salinity of the brine and changes in petrophysical properties. XRD results show the relation between the salinity of the brine and the mineralogical dissolution/enrichment in the samples. The first results shed light on the factors that affect CO₂ injection efficiency process.